Vi-K2/Vi-K3
Joystick Keyboard
User Manual

Vi-K2	Vi-K3

Products covered by this manual:

Product	Description
Vi-K2	Compact Joystick Keyboard
Vi-K3	Enhanced Joystick Keyboard

Document Reference	Date	Firmware
Vk604s.doc	29/03/2012	From VK002L7

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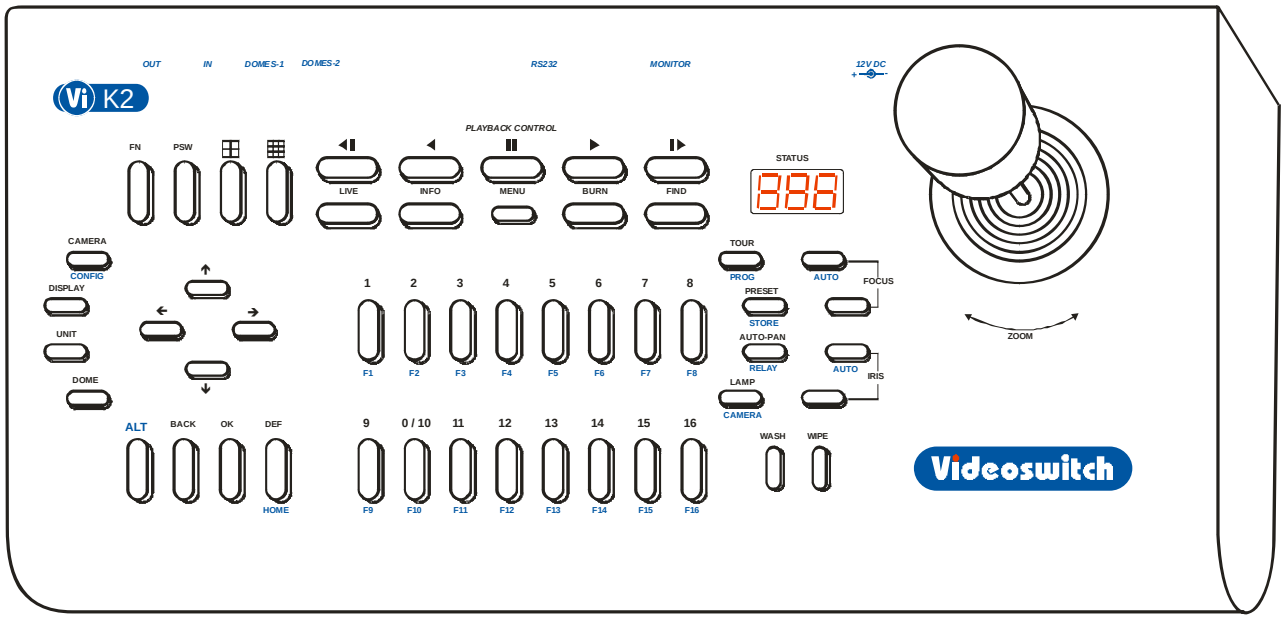
1 Start Here

The Vi-K2/Vi-K3 is designed to provide integrated control of Videoswitch Digital Recorders and third party domes and/or pan and tilt heads.

The Vi-K2/Vi-K3 controls all Videoswitch Vi-series digital recorders. For controlling VDM and VDC series products, the VK-2 should be used.



1.1 Connecting Up

1.1.1 Control of Digital Recorder (or other Videoswitch unit)

The connector marked "**Out**" is connected to the keyboard input of a Videoswitch Digital recorder, using a CAT5 cable.

1.1.2 Connect to a monitor

Connect a monitor to the BNC connector marked "**MONITOR**" on the Vi-K2/Vi-K3. Note that the Digital Recorder must be equipped with the necessary interface. Early Videoswitch Digital Recorders may lack this interface, in which case a Videoswitch T25A adaptor PCB and balun are required.

1.1.3 Multiple Vi-K2/Vi-K3 Keyboards

If a second Vi-K2/Vi-K3 keyboard is to be used, connect the "**Out**" output RJ45 connector of the second (slave) keyboard to the "**In**" input RJ45 connector of the first (master) keyboard. Further keyboards may be daisy-chained in the same way. All domes and Digital Recorders are connected to the master keyboard.

1.1.4 Dome Control from Vi-K2/Vi-K3

Up to 16 domes may be directly connected to the Vi-K2/Vi-K3. The appropriate protocol(s) must be set in the Vi-K2/Vi-K3. Dome control may be via RS485, RS232 or 20mA loop.

- The Vi-K2/Vi-K3 has two dome outputs "**DOMES1**" and "**DOMES-2**".
- A particular Vi-K2/Vi-K3 can be connected to a maximum of two different types of dome; all of one type must be connected to the "**DOMES-1**" output, and all of the other type of dome must be connected to the "**DOMES-2**" output.
- Each camera (up to 256) must be assigned to use one or other of these outputs (the factory default assigns all cameras assigned to "**DOMES-1**" output).
- Each of the two dome outputs is assigned a dome protocol.
- The domes may be either daisy-chained. In this case, turn the termination off on all domes except the last in the daisy chain, which should have its termination set on.
- The dome may be connected in "star" mode by means of a RS485 "star expander" (our product code "VX Hub"). In this case, all domes should have their termination on.
- Each dome must be set up with an address that corresponds with the camera input to which it is connected (i.e. addresses 1, 2, 3 etc for domes on camera inputs 1, 2, 3 etc)

1.1.5 Dome Control from DVR

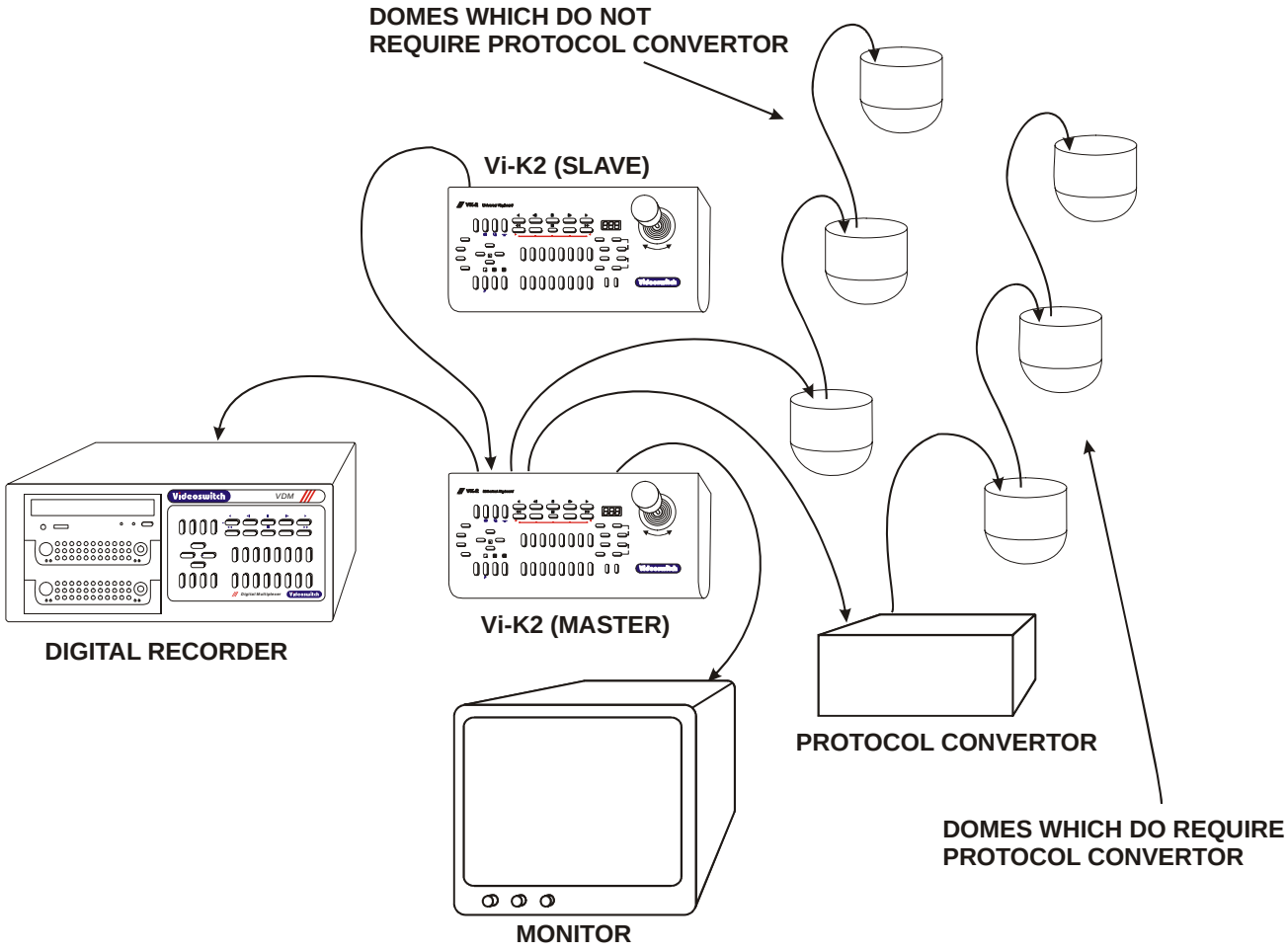
If the DVR, or multiple DVRs, have dome control built in, the domes may be connected to the DVR(s) and the Vi-K2/Vi-K3 used as slave to control everything. The Vi-K2/Vi-K3 protocol must be set to SLAVE (i.e. number 1). Up to 16 Vi-series DVRs may be linked to provide control of up to 256 dome cameras. Dome control may be via RS485, RS232, 20mA loop or "up-the-coax" as supported by the DVR(s).

1.2 Connection Example

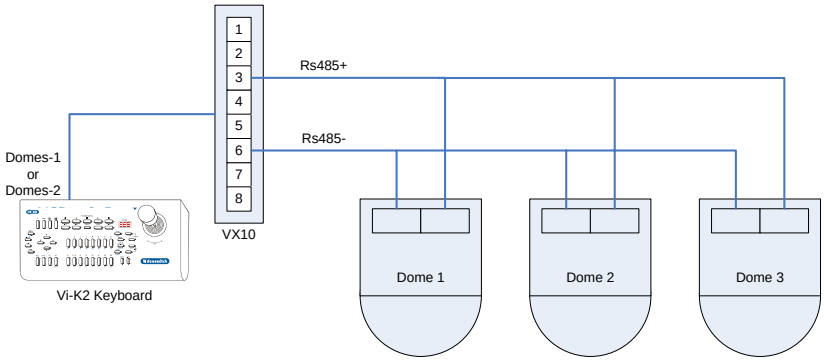
The diagram below illustrates how the Vi-K2/Vi-K3 is typically interconnected with other equipment.

Note:

- All dome control by the Vi-K2/Vi-K3 is via RS485 twisted pair.
- Supported domes, which have RS485 twisted pair control, may be connected directly as shown.
- Domes, which only have coax control, require a protocol converter, also shown.
- The "**DOMES-1**" and "**DOMES-2**" outputs from the Vi-K2/Vi-K3 may be used to control different makes of domes. They may also be used to control the same make of dome.
- If master/slave operation is required, all domes must be connected to the master Vi-K2/Vi-K3.
- Multiple Vi-series Digital Recorders may be daisy chained. Each must be allocated a different unit address (1, 2, 3 etc). Clock synchronisation keep dates and times of all units in step with the master (Unit 1).



1.3 Termination



The last dome in a series must be terminated (In the above example, this would be “Dome 3”). The method is dome specific but will usually be a dipswitch setting.

1.4 Star Expander

Videoswitch manufacture a Star Expander (Part number Vi-X9) which allow 8 domes to be driven in star configuration from one dome output port. Use two star expanders if up to 16 domes are to be driven in this manner, one connected to each dome output.

2 Vi-K2 Configuration

2.1 Quick Configuration

This section describes how to set-up the Vi-K2 for use with any one type of dome. For more complex configurations, see section 2.2.

- Holding the **ALT** key on, press the **CONFIG** key.
- The LED display will show "**PSd**", indicating that a password must be entered.
- Press the number keys **1**, **2**, **3**, **4**, **5**, **6** (to enter default password).
- Press the **OK** key (the characters "**C1.1**" should be flashing on the display).
- Press the **DOME** key (the display shows "**1.01**" indicating "**DOMES-1**" output has been assigned protocol number **1**)
- Enter the protocol you require by pressing two number keys (refer to section **Error! Reference source not found.**). E.g. **1** followed by **2** would select Borsatec (protocol 12).
- Holding the **ALT** key on, press the **CONFIG** key. The word "**Sto**" indicates that the configuration is being stored.

The Vi-K2/Vi-K3 is now ready to control all domes connected to the "**DOMES-1"** output and a Digital Recorder connected to the "**Out**" output.

Note

- If the Vi-K2/Vi-K3 is being used as a slave keyboard, no further configuration is required after factory reset.
- Each dome must be set-up with a camera address (usually DIP switches on the dome).
- The Digital Recorder must have its default unit address (i.e. "001").

2.2 Full Configuration

2.2.1 Restore Factory Configuration

If you wish to return all settings to the factory defaults, follow this procedure:

- Power on the Vi-K2 while pressing the **ALT** key. Keep pressing the **ALT** key (for about 10 seconds) until the word "**Fac**" is displayed on the LED display.
- The Vi-K2 now has all factory settings restored.

2.2.2 Entering Configuration Mode

The Vi-K2/Vi-K3 has a **Configuration Mode** that is allows you to specify the dome protocols and change the user password. To enter this mode, follow these steps:

- Holding the **ALT** key on, press the **CONFIG** key.
- The LED display will show "**PSd**", indicating that a password must be entered.

- Enter the password using the number keys **1**, **2**, **3**, **4**, **5**, **6**, **7**, **8**, **9** and **ZERO** (the factory default password is **123456**). Note that only the last 3 digits are displayed.
- Press the **OK** key.
- If the password is rejected, the word "**Rej**" will be displayed;
- If the password is accepted, the display will flashing "**C1.1**". The Vi-K2/Vi-K3 is now in **Configuration Mode**. While is configuration mode, the display will always be flashing.

2.2.3 Selecting Dome Protocol for the "DOMES-1" output

- Make sure that you are in **Configuration Mode** as detailed in section 2.2.2.
- Press the **DOME** key.
- Press the **BACK** key to select "**DOMES-1**" output.
- Enter the protocol you require by pressing two number keys (refer to section **Error! Reference source not found.**). E.g. **1** followed by **2** would select Borsatec (protocol 12).

2.2.4 Selecting Dome Protocol for the "DOMES-2" output

- Make sure that you are in **Configuration Mode** as detailed in section 2.2.2.
- Press the **DOME** key.
- Press the **OK** key to select "**DOMES-2**" output.
- Enter the protocol you require by pressing two number keys (refer to section **Error! Reference source not found.**). E.g. **1** followed by **2** would select Borsatec (protocol 12).

2.2.5 Assigning cameras to the "DOMES-1" or "DOMES-2" outputs.

Following a factory reset, all cameras are allocated to the "**DOMES-1**" output. If only one type of dome is being used, this section can be skipped.

If two types of dome are to be controlled, all domes of one type should be connected to the "**DOMES-1**" output and all domes of the other type should be connected to the "**DOMES-2**" output. Program the Vi-K2/Vi-K3 to tell it which domes are connected to which outputs as follows:

- Make sure that you are in **Configuration Mode** as detailed in section 2.2.2.
- Press the **UNIT** key and select the unit address (usually **1** if only one Vi-series being controlled)
- Press the **CAMERA** key, and select a camera that is to be assigned. The LED display indicates the camera number **1** to **16** and the currently assign dome output **1** or **2**. For example, the display "**C7.2**" would indicate that camera 7 is controlled via the "**DOMES-2**" output**.**
- Press the **BACK** key to select the "**DOMES-1**" output or press the **OK** key to select the "**DOMES-2**" output.
- Repeat for all units and cameras as required.

2.2.6 Enabling Display Monitors

Each Vi-K2/Vi-K3 keyboard can be set to have control of a limited choice of displays. For example, you may want one Vi-K2/Vi-K3 to be able to select cameras for the spot monitor (i.e. display **2**) whilst another Vi-K2/Vi-K3 can select cameras for the main monitor (i.e. display **1**).

- Make sure that you are in **Configuration Mode** as detailed in section 2.2.2.
- Press the **DISPLAY** key and select a display that you wish to enable or disable by using the number keys.

- Press the **OK** key if you want this Vi-K2/Vi-K3 to be able to select cameras on this display. Press the **BACK** key if you do not want this Vi-K2/Vi-K3 to be able to select cameras on this display.

Note the LED display indicates the selected display and whether it is enabled for camera selection, for example: "**D1.y**" means that the main display monitor can be controlled, whereas "**D2.n**" would mean that the spot monitor cannot be controlled.

2.2.7 Changing the Password

A new password may be set as follows:

- Make sure that you are in **Configuration Mode** as detailed in section 2.2.2.
- Holding the **ALT** key, press the **11** key.
- The LED display will show "**PSd**".
- Enter the password using the number keys **1**, **2**, **3**, **4**, **5**, **6**, **7**, **8**, **9** and **ZERO**. Up to 8 digits may be entered (only the last 3 are displayed)
- Press the **OK** key to save the new password (make sure you remember the password as it will be required next time to wish to enter **Configuration Mode**).

2.2.8 Enabling remote dome control from a Vi400, Vi405, Vi600 or Vi605 Digital Recorder

Domes connected to the Vi-K2/Vi-K3 can be controlled remotely via Ethernet, PSTN or ISDN via a Vi400 or Vi600 Videoswitch Digital Recorder (DVR). Use Vi-Connect as the remote access software. This provides a virtual joystick.

- Single Vi-K2/Vi-K3 When configuring the Vi-K2/Vi-K3, press **ALT** and **10** to enable the remote control feature (the display will show "**--|**").
- Multiple Vi-K2/Vi-K3 When configuring each of the keyboards except for the furthest in the daisy chain from the DVR, press **ALT** and **9** (the display will show "**---**"). When configuring the furthest in the daisy chain from the DVR, press **ALT** and **10** (the display will show "**--|**").

The Vi-K2/Vi-K3 that is connected to the DVR should be connected with a CAT5 cable (or equivalent) that has all pairs connected.

2.2.9 Enabling remote dome control from a Vi200 Digital Recorder

Domes connected to the Vi-K2/Vi-K3 can be controlled remotely via Ethernet, PSTN or ISDN via a Vi200 Videoswitch Digital Recorder (DVR). Use Vi-Connect as the remote access software. This provides a virtual joystick.

When configuring the keyboard or keyboards, press **ALT** and **9** (the display will show "**---**").

Connect the Vi-K2/Vi-K3 to the DVR as for normal control. Add an additional control cable between RJ45 connector that is above the keyboard connector on the Vi200 and the keyboard loop "**IN**" connector on the Vi-K2/Vi-K3. Note that the cable should be wired as follows::

Vi200	Vi-K2/Vi-K3
Pin1	Pin1
Pin2	Pin2
Pin5	Pin5

2.2.10 Camera/Unit Mode

To address multiple DVRs by entering unit 1-16 and camera 1-16 select this mode as follows:

- Press **ALT** and **12**
- The LED display will show “16”.

2.2.11 Camera Select Mode 1-99

To address multiple DVRs by entering just the camera number (up to 99) select this mode as follows:

- Press **ALT** and **13**
- The LED display will show “99”.

2.2.12 Camera Select Mode 1-999

To address multiple DVRs by entering just the camera number (up to 999) select this mode as follows:

- Press **ALT** and **14**
- The LED display will show “999”

2.2.13 Vi-Map Control

2.2.14 Storing Configuration

To exit **Configuration Mode**, Holding the **ALT** key on, press the **CONFIG** key. The word “**Sto**” will be displayed, indicating that the configuration is being stored.

3 Vi-K3 Configuration

3.1 Quick Configuration

This section describes how to set-up the Vi-K3 for use with any one type of dome. For more complex configurations, see section 3.2.

- Holding the **ALT** key on, press the **CONFIG** key.
- The LCD display will show "**Password**", indicating that a password must be entered.
- Press the number keys **1**, **2**, **3**, **4**, **5**, **6** (to enter default password).
- Press the **OK** key
- Use the **LEFT** and **RIGHT** keys to select the required protocol
- Holding the **ALT** key on, press the **CONFIG** key to save the configuration

The Vi-K3 is now ready to control all domes connected to the "**DOMES-1"** output and a Digital Recorder connected to the "**Out**" output.

3.2 Full Configuration

3.2.1 Restore Factory Configuration

If you wish to return all settings to the factory defaults, follow this procedure:

- Power on the Vi-K3 while pressing the **ALT** key. Keep pressing the **ALT** key (for about 10 seconds) until the word "**Store**" is displayed on the LCD display.
- The Vi-K3 now has all factory settings restored.

3.2.2 Entering Menu

- Holding the **ALT** key on, press the **CONFIG** key.
- The LCD display will show "**Password**", indicating that a password must be entered.
- Press the number keys **1**, **2**, **3**, **4**, **5**, **6** (to enter default password).
- Press the **OK** key

3.2.3 Configuration

The V-K3 can now be configured using the following keys:

- **UP** and **DOWN** keys - select configuration item to be set
- **INC** and **DEC** keys - select auxillary parameter to be set
- **LEFT** and **RIGHT** keys - change setting

3.2.4 Exiting Menu

- To exit the menu, holdthe **ALT** key on, then press the **CONFIG** key.

4 Using the Vi-K2/Vi-K3

4.1 Home

To set the Vi-K2/Vi-K3 to its "home" state (Camera 1, Monitor 1 and Unit 1), and to call up the Preset 1 of all connected domes, press these keys:

- While pressing the **ALT** key, press the **DEF** key. Release both.

4.2 Camera Selection

4.2.1 Camera Select Mode

Note that the **Camera Select mode** must first be set up in the configuration before use (see section 2.2.11 and 2.2.12).

To display a particular camera in full screen mode:

- Press the **CAMERA** key

Using the number keys **1, 2, 3, 4, 5, 6, 7, 8, 9** and **0**, enter the number of the camera you wish to view. You may enter one, two or three digits as required. In multi-unit systems, the appropriate DVR will automatically be selected.

4.2.2 Camera/Unit Mode

Note that the **Camera/Unit mode** must first be set up in the configuration (see section 2.2.10).

The required DVR must be first be selected for controlling as follows:

- Press the **UNIT** key
- The LED display will show the letter "**U**" followed by the currently selected unit number (**1**…**16**).
- Press one of the number keys **1**, **2**, **3**…**16** to select another unit. Each unit must be given a different address : 1 (Master), 2, 3 etc. so that the correct one is selected.

To display a particular camera in full screen mode:

- Press the **CAMERA** key
- The LED display will show the letter "**C**" followed by the currently selected unit number (**1**…**16**).
- Press one of the number keys **1**, **2**, **3**…**16** to select another camera.

4.3 Monitor Selection

4.3.1 Using the main monitor text

The display that you wish to control may be selected by pressing the “BACK” key. The bottom right of the DVR’s main monitor will indicate whether the spot monitor is selected. If no monitor is specified, it means that the main monitor will be controlled .

Note that for this display selection method to work, that the Direct Addressing mode described below must not have selected any other display other than 1.

4.3.2 Direct addressing

Alternatively, the display to be controlled may be selected as follows:

- Press the **DISPLAY** key
- The LED display will show the letter “**D**” followed by the currently selected unit number (**1**…**16**).
- Press one of the number keys **1**, **2**, **3**…**16** to select another display.
- Subsequent camera selection will now apply to this display. Note that on a Vi-series Digital Recorder, multi-screen, menus and replay are always displayed on the main monitor, irrespective of the selected display.

4.4 Controlling Digital Recorders

All the keys necessary to control a Vi-series Digital Recorder (DVR) are provided on the Vi-K2/Vi-K3. Once the correct unit number for the DVR has been selected as above (see section 4.1), it can be controlled in the normal way using the Vi-K2/Vi-K3. Refer to the Vi-series Manual for details.

5 Current Protocol Support

A Vi-K2/Vi-K3 is capable of controlling a mixture of two different types of dome. All domes of one type must be connected to the "**DOMES-1**" output, and all domes of the other type must be connected to the "**DOMES-2**" output. These outputs must each be allocated one of the following protocol numbers (See sections 2.2.3 and 2.2.4):

Note that some domes support protocols from other manufacturers, or may be controlled via a protocol converter. It is important to select the correct protocol from the list below, not necessarily the manufacturer of the dome.

Protocol Number	Protocol Name	Output Used	Baud Rate	Comments
1	Slave	RS485	9600	Select this protocol in all slave Vi-K2/Vi-K3's and if domes are connected to dome-enabled DVRs.
2	JVC	RS485	9600	Direct connection via twisted pair.
3	Molynx	RS485	9600	Connect directly to Molynx receivers via twisted pair.
4	Dennard	RS485	9600	Direct connection via twisted pair.
5	VCL	RS485	9600	Direct connection via twisted pair.
6	Sanyo	RS485	9600	Direct connection via twisted pair.
7	BBV	RS232	9600	Connect to a BBV transmitter such as the TX1000/8, which provides control of BBV compatible domes & receivers via coax.
8	BBV	20mA	1200	Connection to BBV compatible receivers via twisted pair. The RX100 receivers provide coax or RS485 control of a range of dome domes as supported by BBV.
9	Forward Vision (VCL)	RS485	9600	Direct connection via twisted pair. Note that the dome must be purchased with the VCL-based protocol option.
10	Mercer	RS485	9600	Direct connection via twisted pair.
11	Merit Lilin (MLP1)	RS485	9600	Direct connection via twisted pair.
12	Borsatec	RS485	9600	Direct connection via twisted pair.
13	Samsung	RS485	9600	Direct connection via twisted pair.
14	Pelco-D (2400)	RS485	2400	Direct connection via twisted pair at standard Pelco baud rate. Many domes use this protocol.

15	VXP4	RS485	9600	Direct connection via twisted pair.
16	SpeedDome (VCL)	RS485	9600	Direct connection via twisted pair.
17	ForwardVision (FV)	RS485	9600	Direct connection via twisted pair. Note that the dome must be purchased with the Forward Vision protocol option.
18	BBV RS485	RS485	9600	
19	Vista Powerdome (PelcoD)	RS485	2400	Similar to standard PelcoD, except for Tour commands.
20	LiLin (MLP2)	RS485	9600	Direct connection via twisted pair.
21	Pelco-D (9600)	RS485	9600	Direct connection via twisted pair. Many domes use this protocol.
22	Pelco-P (4800)	RS485	4800	Direct connection via twisted pair, at standard Pelco baud rate. Many domes use this protocol.
23	Pelco-P (9600)	RS485	9600	Direct connection via twisted pair.. Many domes use this protocol.

6 Protocol 1 - Slave

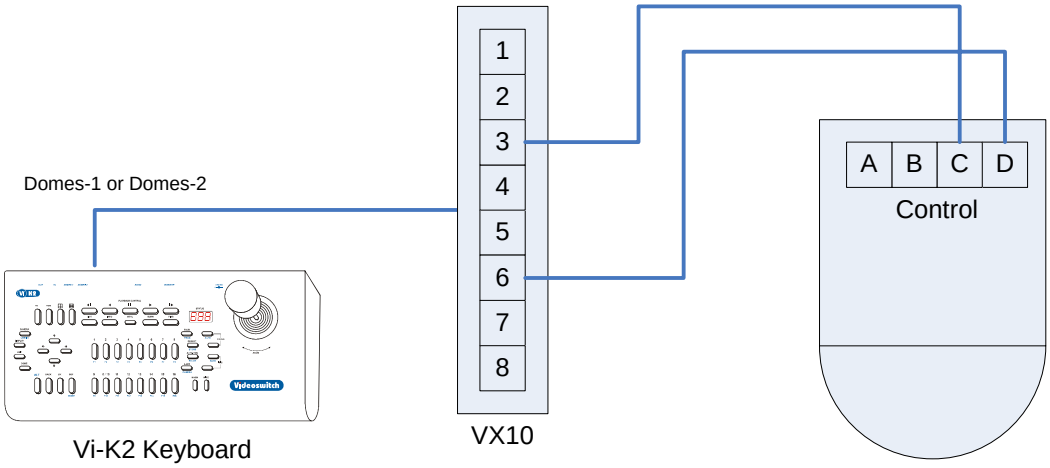
6.1 Supported functions

This protocol is only for use on slave keyboards and the supported functions are dependant on the protocol used by the selected dome.

Note: Programming of presets & tours and "**Do**" menu keys is only available on the master keyboard.

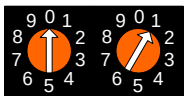
7 Protocol 2 - JVC

7.1 Connections

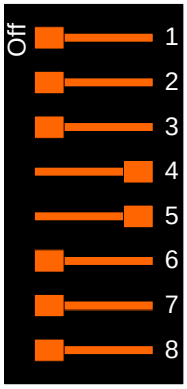


7.2 Settings

7.2.1 Switch Settings



Address 01 (e.g. 01 = Camera 1)



Switch 4: On (Multi-drop)

Switch 5: On (Simplex)

7.2.2 Notes

- Dome Camera numbers are equivalent to Vi-K2/Vi-K3 Keyboard camera numbers.

7.3 Supported functions

- Pan / tilt / zoom / focus / iris
- Variable speed pan / tilt / zoom / focus / iris
- Relay
- Auto-focus
- Auto-iris
- Auto-pan
- Presets (16)
- Tours (1 sequence)
- Menus

7.4 Joystick Operation

7.4.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

7.4.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

7.5 Lens Control

7.5.1 Focus

- The two **FOCUS** keys can be used to adjust the focus.
- Press the **ALT** key and the upper **FOCUS** key to select auto-focus.

7.5.2 Iris

- The two **IRIS** keys can be used to adjust the iris.
- Press the **ALT** key and the upper **IRIS** key to select auto-iris.

7.6 Auxiliary Functions

7.6.1 Wash

Press the **WASH** key to operate the wash function.

7.6.2 Wipe

Press the **WIPE** key to turn on the wiper. Press again to turn off.

7.6.3 Auto-Pan

Press the **AUTO-PAN** key to turn on the auto-pan function. Press again to turn off.

7.6.4 Relay

Holding the **ALT** key on, press the **RELAY** key to turn on the auxiliary relay. Press these keys again to turn relay off again.

7.7 Presets

7.7.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

7.7.2 Setting a Preset

- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **STORE** key to store the preset.

7.7.3 Clearing a Preset

- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **WIPE** key to clear the preset.

7.8 Tours

The JVC dome supports 1 tour. It is a sequence of all preset positions.

7.8.1 Running a Tour

- Press the **TOUR** key.
- The display will show the letter "**t—**".
- Press a number key **1** to run the tour.
- The dome will run the tour until the **TOUR** key is pressed again.

7.9 Menus

The Vi-K2/Vi-K3 has a special mode to make access to dome menus very easy:

- Press the **DOME** key on the Vi-K2/Vi-K3.
- The letters "**Do**" will appear on the display.

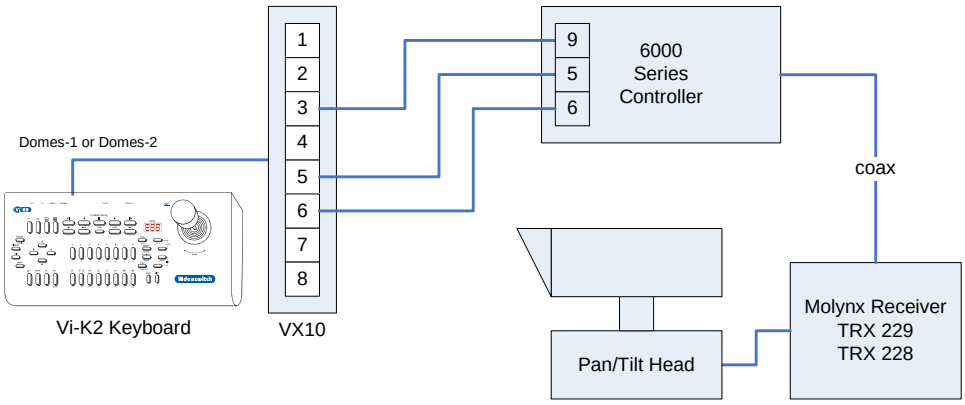
While the "**Do**" is being displayed, some of the keys on the Vi-K2/Vi-K3 have special functions as follows:

- Press the **MENU** key to enter the dome user menu.
- Use the **Up**, **Down**, **Left**, **Right** arrow keys to navigate within the dome menu.
- Press the **OK** key to enter a sub-menu or to accept a menu setting.

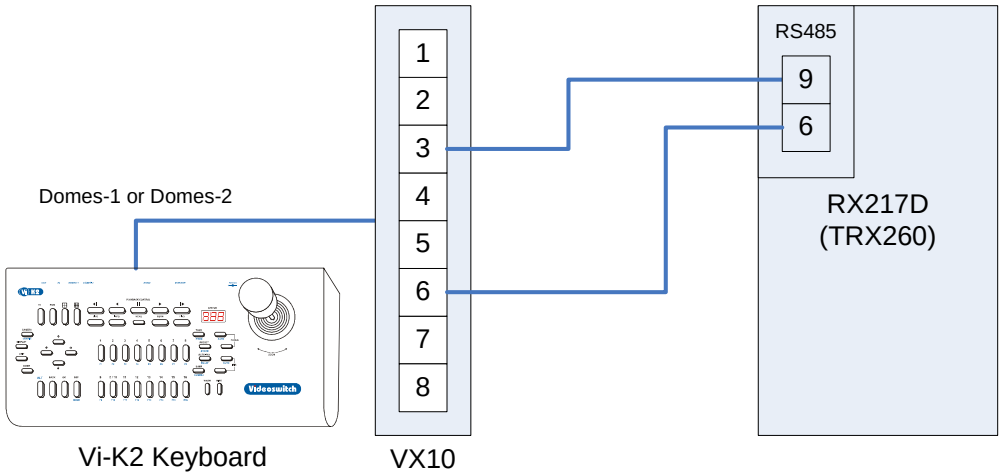
8 Protocol 3 - Molynx

8.1 Connections

Example 1



Example 2



8.2 Settings

Example 2:

Address 00 = Camera 1, Address 01 = Camera 2, Address 02 = Camera 3

Make sure the receiver is reset the first time it is used (with pan/tilt head connected) to initialise presets (see section 8.9.1 Receiver Reset).

8.3 Supported functions

- Pan / tilt / zoom / focus
- Variable speed pan / tilt
- Wash
- Wipe
- Relay
- Lamp
- Camera power
- Presets (16)
- Tours (1 sequence & 1 tour)
- Auto-focus
- Auto-iris
- Lens speed
- Receiver Reset

8.4 Joystick Operation

8.4.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

8.4.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

8.5 Lens Control

8.5.1 Focus

- The two **FOCUS** keys can be used to adjust the focus.
- Press the **ALT** key and the upper **FOCUS** key to select auto-focus.

8.5.2 Iris

- Press the **ALT** key and the upper **IRIS** key to select auto-iris.

8.6 Auxiliary Functions

8.6.1 Wash

Press the **WASH** key to operate the wash function.

8.6.2 Wipe

Press the **WIPE** key to turn on the wiper. Press again to turn off.

8.6.3 Auto-Pan

Press the **AUTO-PAN** key to turn on the auto-pan function. Press again to turn off.

8.6.4 Lamp

Press the **LAMP** key to turn on the lamp. Press again to turn off.

8.6.5 Relay

Holding the **ALT** key on, press the **RELAY** key to turn on the auxiliary relay. Press these keys again to turn relay off again.

8.6.6 Camera

Press and hold the **ALT** key and press the **CAMERA** key to turn on the camera relay. Press these keys again to turn it off again.

8.7 Presets

8.7.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

8.7.2 Setting a Preset

- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **STORE** key to store the preset.

8.8 Tours

This dome only supports programmable 1 tour/sequence. Tour 1 is a tour through all programmed presets with a default dwell & speed, tour 2 uses individual dwell and speed for each preset.

8.8.1 Running a Tour

- Press the **TOUR** key.
- The display will show the letter "**t—**".
- Press one of the number keys **1** (sequence, default dwell and speed) or **2** (tour, individual dwell and speed per preset).
- The dome will run the tour until the **TOUR** key is pressed again.

8.8.2 Programming Tour 1

To start the tour programming:

- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letter "**t—**", flashing.
- Press one of the number key **1** to select a tour number.
- Holding the **ALT** key on, press the **PROG** key.

Repeat these steps for each position in the tour:

- The display will show the letters "**PoS**", flashing (asking for a preset position).
- Enter the next preset position number **1**, **2**, **3**…**16**.
- Holding the **ALT** key on, press the **PROG** key, and repeat for all positions.

To finish programming a tour:

- Holding the **ALT** key on, press the **PROG** key (i.e. without entering another position) to finish the tour programming.
- The word "**Fin**" will be displayed, indicating that the tour programming has finished.
- Finally, Holding the **ALT** key on, press the **PROG** key to return the display to its normal mode.

8.8.3 Programming Tour 2

To start the tour programming:

- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letter "**t—**", flashing.
- Press one of the number key **2** to select a tour number.
- Holding the **ALT** key on, press the **PROG** key.

Repeat these steps for each position in the tour:

- The display will show the letters "**PoS**", flashing (asking for a preset position).
- Enter the next preset position number **1**, **2**, **3**…**16**.
- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letters "**dLL**", flashing (asking for a dwell time).
- Optionally enter a new dwell time (**0**, **1**, **2**…**99** where each increment represents about 2 seconds).
- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letters "**Spd**", flashing (asking for a speed).
- Optionally enter a speed value to determine the speed of movement between one position and the next (**0**, **1**, **2**…**99**).
- Holding the **ALT** key on, press the **PROG** key, and repeat for all positions.

To finish programming a tour:

- The tour can be finished when the letters "**PoS**" are displayed, as follows:
- Holding the **ALT** key on, press the **PROG** key (i.e. without entering another position) to finish the tour programming.
- The word "**Fin**" will be displayed, indicating that the tour programming has finished.
- Finally, Holding the **ALT** key on, press the **PROG** key to return the display to its normal mode.

8.9 Other Commands

8.9.1 Lens Slow

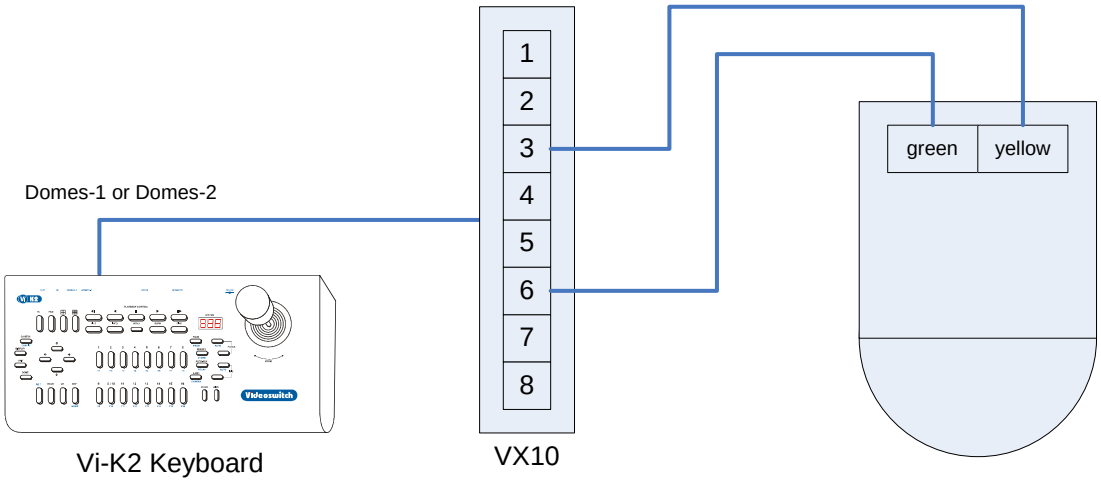
Press and hold the ALT key and press the F9 key to toggle the lens speed between normal and slow.

8.9.2 Receiver Reset

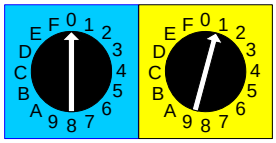
Press and hold the ALT key and press the F4 key to reset the receiver. This should be done when the system is installed, with pan/tilt head connected, to initialise the presets.

9 Protocol 4 - Dennard

9.1 Connections



9.2 Settings



Camera number (e.g. 01 = Camera 1)

9.2.1 Notes

- Default supervisor password for Dennard dome internal menus is “1111”
- Default engineer password Dennard dome internal menus is “9999”

9.3 Supported functions

- Pan / tilt / zoom / focus (Focus is dependent on dome model)
- Variable speed pan / tilt / zoom / focus (Focus is dependent on dome model)
- Wash
- Wipe
- Relay
- Lamp
- Presets (16)
- Tours (16)
- Menus
- Menu hot-keys

9.4 Joystick Operation

9.4.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

9.4.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

9.5 Lens Control

9.5.1 Focus (Dome model dependent)

- The two **FOCUS** keys can be used to adjust the focus.

9.6 Auxiliary Functions

9.6.1 Wash

Press the **WASH** key to operate the wash function.

9.6.2 Wipe

Press the **WIPE** key to turn on the wiper. Press again to turn off.

9.6.3 Lamp

Press the **LAMP** key to turn on the lamp. Press again to turn off.

9.6.4 Relay

Holding the **ALT** key on, press the **RELAY** key to turn on the auxiliary relay. Press these keys again to turn relay off again.

9.7 Presets

9.7.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

9.7.2 Setting a Preset

- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **STORE** key to store the preset.
- The dome menus may automatically appear so that a text string can be entered.

9.8 Tours

9.8.1 Running a Tour

- Press the **TOUR** key.
- The display will show the letter "**t—**".
- Press one of the number keys **1**, **2**, **3**…**16** to run a tour (sequence) that has previously been stored.
- The dome will run the tour until the **TOUR** key is pressed again.

9.8.2 Programming a Tour

To start the tour programming:

- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letter "**t—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a tour number.
- Holding the **ALT** key on, press the **PROG** key.

Repeat these steps for each position in the tour:

- The display will show the letters "**PoS**", flashing (asking for a preset position).
- Enter the next preset position number **1**, **2**, **3**…**16**.
- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letters "**dLL**", flashing (asking for a dwell time).
- Optionally enter a new dwell time (**0**, **1**, **2**…**9** where each increment represents 2 seconds).
- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letters "**Spd**", flashing (asking for a speed).
- Optionally enter a new speed value to determine how long the dome takes to get from one position to the next (**0**, **1**, **2**…**9** where each increment represents 2 seconds).
- Holding the **ALT** key on, press the **PROG** key, and repeat for all positions.

To finish programming a tour:

- The tour can be finished when the letters "**PoS**" are displayed, as follows:
- Holding the **ALT** key on, press the **PROG** key (i.e. without entering another position) to finish the tour programming.
- The word "**Fin**" will be displayed, indicating that the tour programming has finished.
- Finally, Holding the **ALT** key on, press the **PROG** key to return the display to its normal mode.

9.9 Menus

See 7.9 for basic details. Also, while the "**Do**" is being displayed, some of the keys on the Vi-K2/Vi-K3 have special functions as follows:

- Press the **BURN** key to enter the dome supervisor menu.
- Press the **FIND** key to enter the dome technician menu.

If operating a Dennard dome using BBV protocol via coax, the BBV menu functions are accessed as follows:

- Holding the **ALT** key on, press one of the camera keys **1**, **2**, **3**...**15** to select one of the BBV menu options (menu not visible). E.g. **ALT** and **4** to choose to erase a preset.
- Press one of the camera keys **1**, **2**, **3**...**15** to set a value (e.g. **3** to erase preset number 3).
- Use the **Up**, **Down**, **Left**, **Right** arrow and **OK** keys to enter the title in the pop-up menu.

10 Protocol 5 - VCL

10.1 Supported functions

- Pan / tilt / zoom / focus / iris
- Variable speed pan / tilt / zoom / focus / iris
- Wash
- Wipe
- Relay
- Auto-pan
- Presets (16)
- Tours (16)
- 180° turn
- Auto-focus
- Auto-iris
- Colour / mono switch

10.2 Joystick Operation

10.2.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

10.2.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

10.3 Lens Control

10.3.1 Focus

- The two **FOCUS** keys can be used to adjust the focus.
- Press the **ALT** key and the upper **FOCUS** key to select auto-focus.

10.3.2 Iris

- The two **IRIS** keys can be used to adjust the iris.
- Press the **ALT** key and the upper **IRIS** key to select auto-iris.

10.4 Auxiliary Functions

10.4.1 Wash

Press the **WASH** key to operate the wash function.

10.4.2 Wipe

Press the **WIPE** key to turn on the wiper. Press again to turn off.

10.4.3 Auto-Pan

Press the **AUTO-PAN** key to turn on the auto-pan function. Press again to turn off.

10.4.4 Relay

Holding the **ALT** key on, press the **RELAY** key to turn on the auxiliary relay. Press these keys again to turn relay off again.

10.5 Presets

10.5.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

10.5.2 Setting a Preset

- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **STORE** key to store the preset.

10.6 Tours

10.6.1 Running a Tour

- Press the **TOUR** key.
- The display will show the letter "**t—**".
- Press one of the number keys **1**, **2**, **3**…**16** to run a tour (sequence) that has previously been stored.
- The dome will run the tour until the **TOUR** key is pressed again.

10.6.2 Programming a Tour

To start the tour programming:

- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letter "**t—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a tour number.
- Holding the **ALT** key on, press the **PROG** key.

Repeat these steps for each position in the tour:

- The display will show the letters "**PoS**", flashing (asking for a preset position).
- Enter the next preset position number **1**, **2**, **3**…**16**.
- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letters "**dLL**", flashing (asking for a dwell time)
- Optionally enter a new dwell time (**0**, **1**, **2**…**9** where each increment represents 2 seconds).
- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letters "**Spd**", flashing (asking for a speed).
- Optionally enter a new speed value to determine how long the dome takes to get from one position to the next (**0**, **1**, **2**…**9** where each increment represents 2 seconds).
- Holding the **ALT** key on, press the **PROG** key, and repeat for all positions.

To finish programming a tour:

- The tour can be finished when the letters "**PoS**" are displayed, as follows:
- Holding the **ALT** key on, press the **PROG** key (i.e. without entering another position) to finish the tour programming.
- The word "**Fin**" will be displayed, indicating that the tour programming has finished.
- Finally, Holding the **ALT** key on, press the **PROG** key to return the display to its normal mode.

10.7 Other Commands

180° turn:

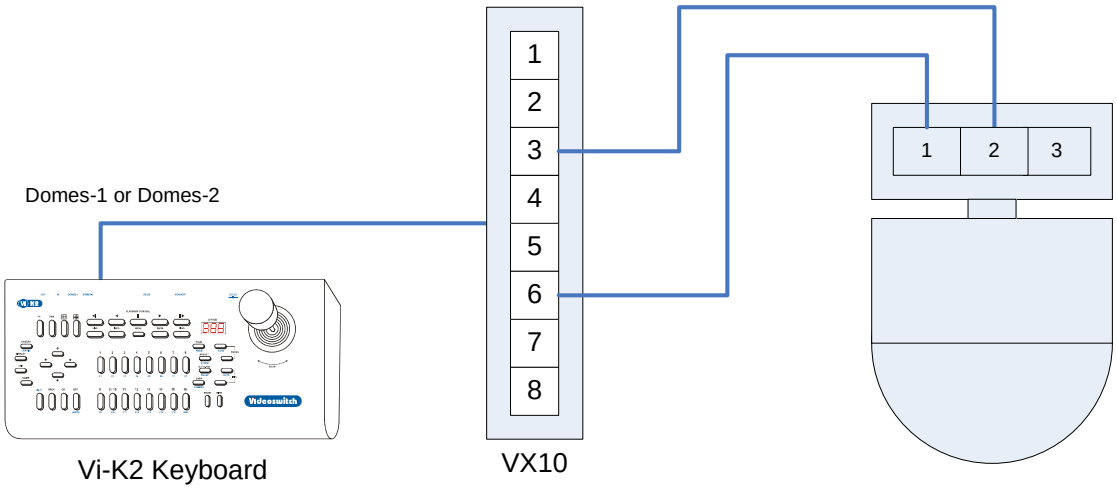
- Press and hold the **ALT** key and then press the **F1** key.

Colour/mono toggle:

- Press and hold the **ALT** key and then press the **F2** key.

11 Protocol 6 - Sanyo

11.1 Connections



11.2 Supported functions

- Pan / tilt / zoom / focus / iris
- Variable speed pan / tilt / zoom / focus / iris
- Presets (16)
- Tours (16)
- Auto-focus
- Camera Reset

11.3 Joystick Operation

11.3.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

11.3.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

11.4 Lens Control

11.4.1 Focus

- The two **FOCUS** keys can be used to adjust the focus.
- Press the **ALT** key and the upper **FOCUS** key to select auto-focus.

11.4.2 Iris

- The two **IRIS** keys can be used to adjust the iris.

11.5 Presets

11.5.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

11.5.2 Setting a Preset

- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **STORE** key to store the preset.
- In the case of Dennard domes, the dome menus may automatically appear so that a text string can be entered.

11.6 Tours

11.6.1 Running a Tour

- Press the **TOUR** key.
- The display will show the letter "**t—**".
- Press one of the number keys **1**, **2**, **3**…**16** to run a tour (sequence) that has previously been stored.
- The dome will run the tour until the **TOUR** key is pressed again.

11.6.2 Programming a Tour

To start the tour programming:

- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letter "**t—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a tour number.
- Holding the **ALT** key on, press the **PROG** key.

Repeat these steps for each position in the tour:

- The display will show the letters "**PoS**", flashing (asking for a preset position).
- Enter the next preset position number **1**, **2**, **3**…**16**.
- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letters "**dLL**", flashing (asking for a dwell time)
- Optionally enter a new dwell time (**0**, **1**, **2**…**9** where each increment represents 2 seconds).
- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letters "**Spd**", flashing (asking for a speed).
- Optionally enter a new speed value to determine how long the dome takes to get from one position to the next (**0**, **1**, **2**…**9** where each increment represents 2 seconds).
- Holding the **ALT** key on, press the **PROG** key, and repeat for all positions.

To finish programming a tour:

- The tour can be finished when the letters "**PoS**" are displayed, as follows:
- Holding the **ALT** key on, press the **PROG** key (i.e. without entering another position) to finish the tour programming.
- The word "**Fin**" will be displayed, indicating that the tour programming has finished.
- Finally, Holding the **ALT** key on, press the **PROG** key to return the display to its normal mode.

11.7 Other Commands

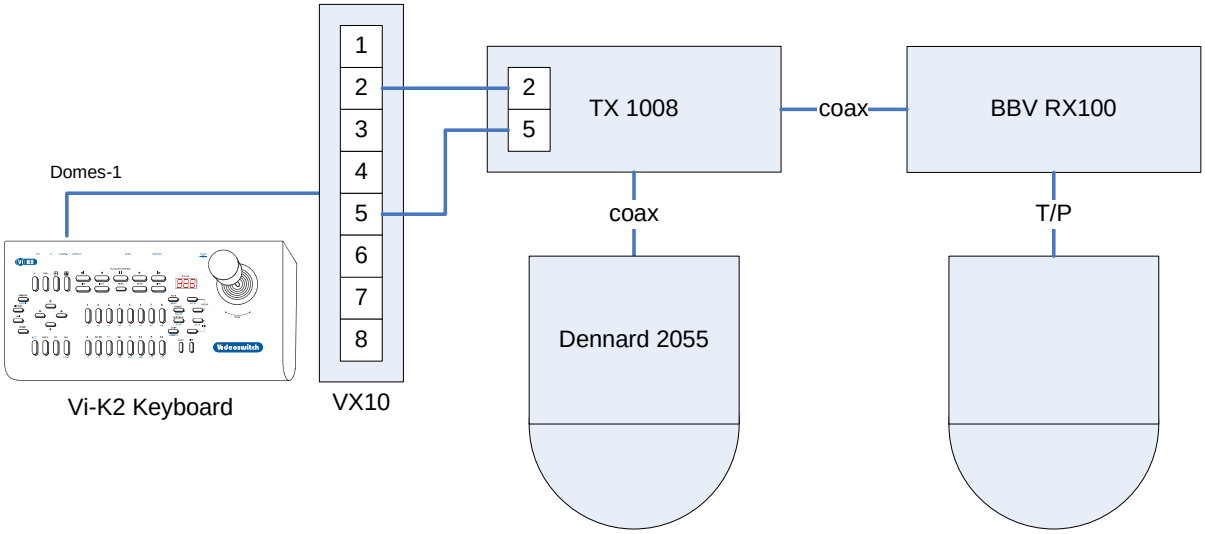
Camera reset:

- Press and hold the **ALT** key and then press the **LAMP / CAMERA** key.

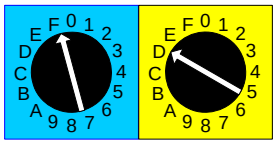
12 Protocol 7 - BBV (RS232)

12.1 Connections

This example shows a Vi-K2/Vi-K3 keyboard controlling a Dennard 2055 and another dome via a BBV RX100.



12.2 Settings



Dennard 2055 must be set to Camera FD

If a TX1008 or similar multiple camera transmitter is being used, make sure that camera inputs 1, 2, 3 etc of the transmitter are looped through to the corresponding camera inputs 1, 2, 3 etc of the Videoswitch DVR (if present)

12.3 Supported functions

- Pan / tilt / zoom / focus / iris
- Variable speed pan / tilt
- Wash
- Wipe
- Relay
- Lamp
- Presets (16)
- Tours (2 tours & 1 sequence)
- Auto-pan
- Menus

12.4 Joystick Operation

12.4.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

12.4.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

12.5 Lens Control

12.5.1 Focus

- The two **FOCUS** keys can be used to adjust the focus.
- Press the **ALT** key and the upper **FOCUS** key to select auto-focus.

12.5.2 Iris

- The two **IRIS** keys can be used to adjust the iris.
- Press the **ALT** key and the upper **IRIS** key to select auto-iris.

12.6 Auxiliary Functions

12.6.1 Wash

Press the **WASH** key to operate the wash function.

12.6.2 Wipe

Press the **WIPE** key to turn on the wiper. Press again to turn off.

12.6.3 Auto-Pan

Press the **AUTO-PAN** key to turn on the auto-pan function. Press again to turn off.

12.6.4 Lamp

Press the **LAMP** key to turn on the lamp. Press again to turn off.

12.6.5 Relay

Holding the **ALT** key on, press the **RELAY** key to turn on the auxiliary relay. Press these keys again to turn relay off again.

12.7 Presets

12.7.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

12.7.2 Setting a Preset

- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **STORE** key to store the preset.
- In the case of Dennard domes, the dome menus may automatically appear so that a text string can be entered.

12.8 Tours

12.8.1 Running a Tour

- Press the **TOUR** key.
- The display will show the letter "**t—**".
- Press one of the number keys **1** or **2** to run a tour (sequence) that has previously been stored.
- The dome will run the tour until the **TOUR** key is pressed again.

Note if attempting to set a tour on a Dennard 2055 dome using BBV, tours must be set in the dome menus.

12.9 Menus

The Vi-K2/Vi-K3 has a special mode to make access to dome menus very easy:

- Press the **DOME** key on the Vi-K2/Vi-K3.
- The letters "**Do**" will appear on the display.

While the "**Do**" is being displayed, some of the keys on the Vi-K2/Vi-K3 have special functions as follows:

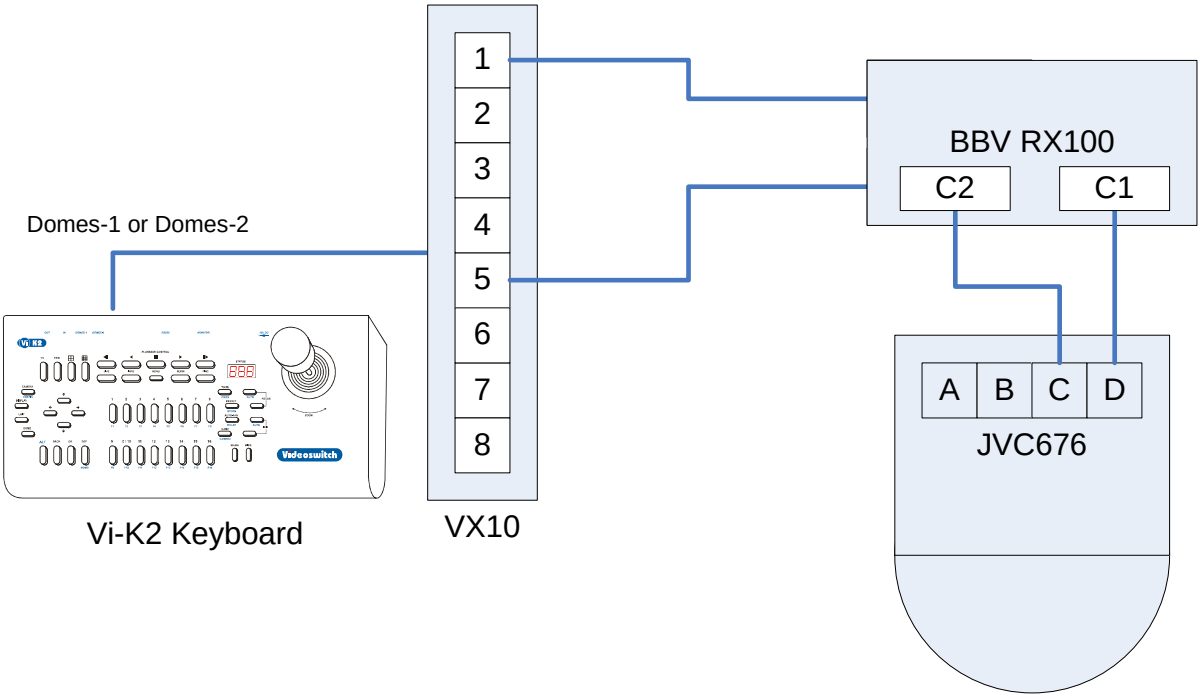
- Press the **MENU** key to enter the dome user menu.
- Use the **Up**, **Down**, **Left**, **Right** arrow keys to navigate within the dome menu.
- Use the **BACK** and **DEF** keys to move the cursor left and right within a text string.
- Press the **SEARCH** key to enter a sub-menu or to accept a menu setting.

If operating a Dennard dome using BBV protocol via coax, the BBV menu functions are accessed as follows:

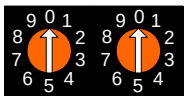
- Holding the **ALT** key on, press one of the camera keys **1**, **2**, **3**...**15** to select one of the BBV menu options (menu not visible). E.g. **ALT** and **4** to choose to erase a preset.
- Press one of the camera keys **1**, **2**, **3**...**15** to set a value (e.g. **3** to erase preset number 3).
- Use the **Up**, **Down**, **Left**, **Right** arrow and **OK** keys to enter the title in the pop-up menu.

13 Protocol 8 - BBV (20mA)

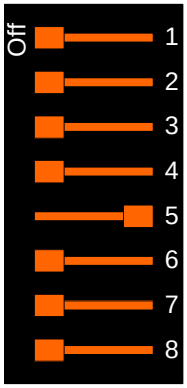
13.1 Connections



13.2 Settings



Address 00



Switch 4: On (Point to point)

Switch 5: On (Simplex)

13.3 Supported functions

- Pan / tilt / zoom / focus / iris / zoom / focus
- Variable speed pan / tilt / zoom / focus
- Wash
- Wipe
- Lamp
- Presets (16)
- Tours (2)
- Auto-pan

13.4 Joystick Operation

13.4.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

13.4.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

13.5 Lens Control

13.5.1 Focus

- The two **FOCUS** keys can be used to adjust the focus.
- Press the **ALT** key and the upper **FOCUS** key to select auto-focus.

13.5.2 Iris

- The two **IRIS** keys can be used to adjust the iris.
- Press the **ALT** key and the upper **IRIS** key to select auto-iris.

13.6 Auxiliary Functions

13.6.1 Wash

Press the **WASH** key to operate the wash function.

13.6.2 Wipe

Press the **WIPE** key to turn on the wiper. Press again to turn off.

13.6.3 Auto-Pan

Press the **AUTO-PAN** key to turn on the auto-pan function. Press again to turn off.

13.6.4 Lamp

Press the **LAMP** key to turn on the lamp. Press again to turn off.

13.6.5 Relay

Holding the **ALT** key on, press the **RELAY** key to turn on the auxiliary relay. Press these keys again to turn relay off again.

13.6.6 Camera

Press and hold the **ALT** key and press the **CAMERA** key to turn on the camera relay. Press these keys again to turn it off again.

13.7 Presets

13.7.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

13.7.2 Setting a Preset

- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **STORE** key to store the preset.
- In the case of Dennard domes, the dome menus may automatically appear so that a text string can be entered.

13.7.3 Clearing a Preset

- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **WIPE** key to clear the preset.

13.8 Tours

13.8.1 Running a Tour

- Press the **TOUR** key.
- The display will show the letter "**t—**".
- Press one of the number keys **1** or **2** to run a tour (sequence) that has previously been stored.
- The dome will run the tour until the **TOUR** key is pressed again.

13.8.2 Programming a Tour

To start the tour programming:

- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letter "**t—**", flashing.
- Press one of the number keys **1** or **2** to select a tour number.
- Holding the **ALT** key on, press the **PROG** key.

Repeat these steps for each position in the tour:

- The display will show the letters "**PoS**", flashing (asking for a preset position).
- Enter the next preset position number **1**, **2**, **3**…**16**.
- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letters "**dLL**", flashing (asking for a dwell time).
- Optionally enter a new dwell time (**0**, **1**, **2**…**9** where each increment represents 2 seconds).
- Holding the **ALT** key on, press the **PROG** key, and repeat for all positions.

To finish programming a tour:

- The tour can be finished when the letters "**PoS**" are displayed, as follows:
- Holding the **ALT** key on, press the **PROG** key (i.e. without entering another position) to finish the tour programming.
- The word "**Fin**" will be displayed, indicating that the tour programming has finished.
- Finally, Holding the **ALT** key on, press the **PROG** key to return the display to its normal mode.

13.9 Menus

The Vi-K2/Vi-K3 has a special mode to make access to dome menus very easy:

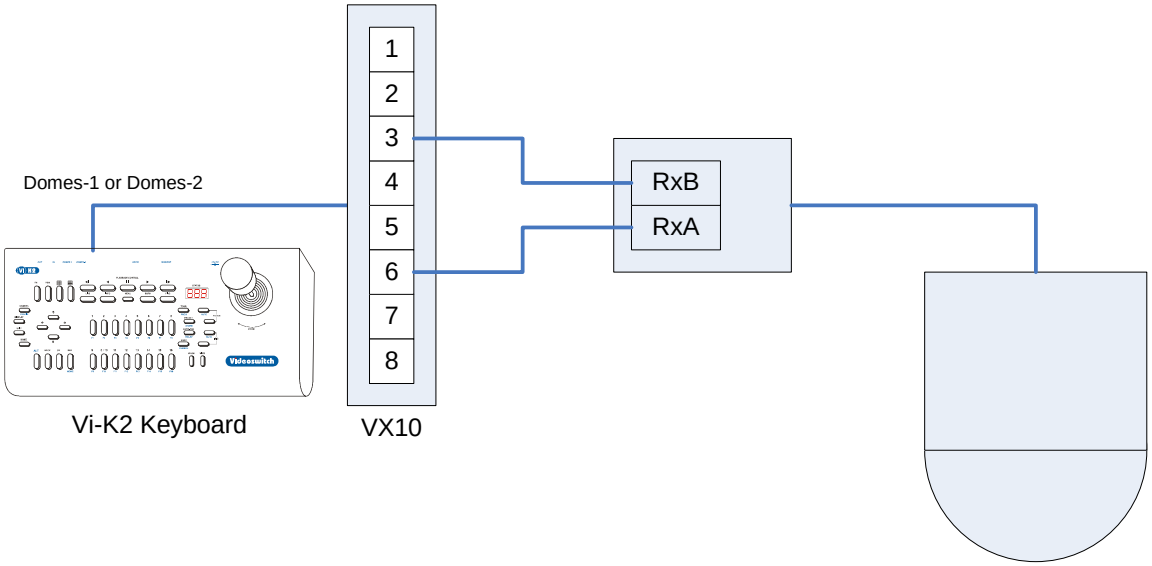
- Press the **DOME** key on the Vi-K2/Vi-K3.
- The letters "**Do**" will appear on the display.

While the "**Do**" is being displayed, some of the keys on the Vi-K2/Vi-K3 have special functions as follows:

- Press the **MENU** key to enter the dome user menu.
- Use the **Up**, **Down**, **Left**, **Right** arrow keys to navigate within the dome menu.
- Use the **BACK** and **DEF** keys to move the cursor left and right within a text string.
- Press the **SEARCH** key to enter a sub-menu or to accept a menu setting.

14 Protocol 9 - Forward Vision (VCL)

14.1 Connections



14.2 Settings

This protocol option requires a Forward Vision dome with VCL compatible protocol installed. The address of the dome must also be set – refer to Forward Vision manual.

14.3 Supported functions

- Pan / tilt / zoom / focus / iris
- Variable speed pan / tilt / zoom / focus / iris
- Wash
- Wipe
- Relay
- Auto-pan
- Presets (16)
- Tours (16)
- 180° turn
- Auto-focus
- Auto-iris
- Colour / mono switch
- Pan / tilt reverse

14.4 Joystick Operation

14.4.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

14.4.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

14.5 Lens Control

14.5.1 Focus

- The two **FOCUS** keys can be used to adjust the focus.
- Press the **ALT** key and the upper **FOCUS** key to select auto-focus.

14.5.2 Iris

- The two **IRIS** keys can be used to adjust the iris.
- Press the **ALT** key and the upper **IRIS** key to select auto-iris.

14.6 Auxiliary Functions

14.6.1 Wash

Press the **WASH** key to operate the wash function.

14.6.2 Wipe

Press the **WIPE** key to turn on the wiper. Press again to turn off.

14.6.3 Auto-Pan

Press the **AUTO-PAN** key to turn on the auto-pan function. Press again to turn off.

14.6.4 Relay

Holding the **ALT** key on, press the **RELAY** key to turn on the auxiliary relay. Press these keys again to turn relay off again.

14.7 Presets

14.7.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

14.7.2 Setting a Preset

- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **STORE** key to store the preset.

14.8 Tours

14.8.1 Running a Tour

- Press the **TOUR** key.
- The display will show the letter "**t—**".
- Press one of the number keys **1**, **2**, **3**…**16** to run a tour (sequence) that has previously been stored.
- The dome will run the tour until the **TOUR** key is pressed again.

14.8.2 Programming a Tour

To start the tour programming:

- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letter "**t—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a tour number.
- Holding the **ALT** key on, press the **PROG** key.

Repeat these steps for each position in the tour:

- The display will show the letters "**PoS**", flashing (asking for a preset position)
- Enter the next preset position number **1**, **2**, **3**…**16**.
- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letters "**dLL**", flashing (asking for a dwell time)
- Optionally enter a new dwell time (**0**, **1**, **2**…**9** where each increment represents 2 seconds).
- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letters "**Spd**", flashing (asking for a speed).
- Optionally enter a new speed value to determine how long the dome takes to get from one position to the next (**0**, **1**, **2**…**9** where each increment represents 2 seconds).
- Holding the **ALT** key on, press the **PROG** key, and repeat for all positions.

To finish programming a tour:

- The tour can be finished when the letters "**PoS**" are displayed, as follows:
- Holding the **ALT** key on, press the **PROG** key (i.e. without entering another position) to finish the tour programming.
- The word "**Fin**" will be displayed, indicating that the tour programming has finished.
- Finally, Holding the **ALT** key on, press the **PROG** key to return the display to its normal mode.

14.9 Privacy commands

Set whole

- Press and hold **ALT** then press the **F9** key.

Clear whole

- Press and hold **ALT** then press the **F10** key.

Uncover all

- Press and hold **ALT** then press the **F11** key.

Replace all

- Press and hold **ALT** then press the **F12** key.

14.10 Other Commands

180° turn:

- Press and hold the **ALT** key and then press the **F1** key.

Colour/mono toggle:

- Press and hold the **ALT** key and then press the **F2** key.

Pan / tilt speed scaling on:

- Press and hold the **ALT** key and then press the **F13** key.

Pan / tilt speed scaling off:

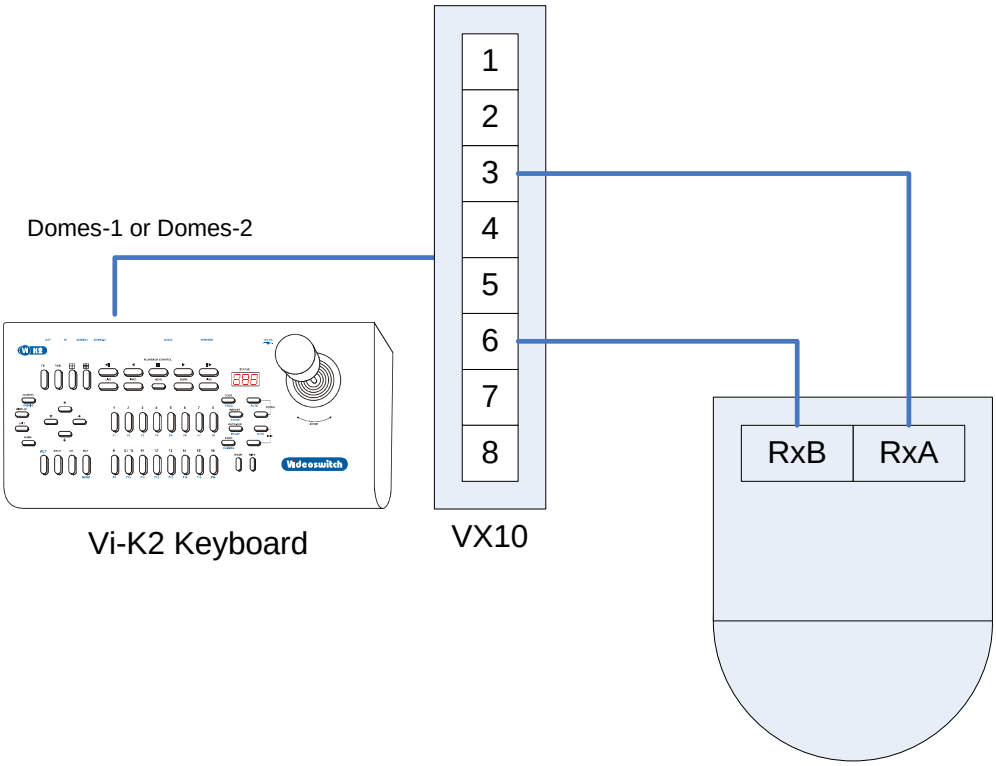
- Press and hold the **ALT** key and then press the **F14** key.

Pan / tilt reverse:

- Press and hold the **ALT** key and then press the **F15** key.

15 Protocol 10 - Mercer

15.1 Connections



15.2 Settings

Address 001 = Camera 1

15.3 Supported functions

- Pan / tilt / zoom / focus / iris / zoom / focus
- Variable speed pan / tilt / zoom / focus
- Lamp
- Presets (16)
- Tours (4 + 2 “Walk Patrols” + all points)
- 180° turn
- Privacy zones
- Zero lux
- Colour mode

15.4 Joystick Operation

15.4.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

15.4.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

15.5 Lens Control

15.5.1 Focus

- The two **FOCUS** keys can be used to adjust the focus.

15.5.2 Iris

- The two **IRIS** keys can be used to adjust the iris.

15.6 Auxiliary Functions

15.6.1 Lamp

Press the **LAMP** key to turn on the lamp. Press again to turn off.

15.7 Presets

15.7.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

15.7.2 Setting a Preset

- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **STORE**.
- The display will show the letter "**DII**", flashing.
- Enter the dwell time for this preset.
- Press and hold the **ALT** key and then press the **STORE**.
- The display will show the letter "**SPd**", flashing.
- Enter the speed for this preset.
- Press and hold the **ALT** key and then press the **STORE**.
- The display will show the letter "**Tr**", flashing.
- Enter the tour(s) you wish this preset to be in (see table below).

Enter number…	Preset will be in…	Enter number…	Preset will be in…
1	Tour 1 only	9	Tours 2 + 4
2	Tour 2 only	10	Tours 2 + 5
3	Tour 4 only	11	Tours 4 + 5
4	Tour 5 only	12	Tours 1 + 2 + 4
5	Tours 1 + 2 + 4 + 5	13	Tours 1 + 2 + 4 + 5
6	Tours 1 + 2	14	Tours 1 + 2 + 5
7	Tours 1 + 4	15	Tours 1 + 4 + 5
8	Tours 1 + 5	16	Tours 2 + 4 + 5

- Press and hold the **ALT** key and then press the **STORE**.

15.7.3 Clearing a Preset

- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **WIPE** key to clear the preset.

15.8 Tours

15.8.1 Running a Tour

- Press the **TOUR** key.
- The display will show the letter "**t—**".
- Press one of the number keys **1**, **2**, **3**, **4**, **5**, **9**, or **10** to run a tour (sequence) that has previously been stored.
    - 1, 2, 4, 5 are tours using selected presets (see Programming a preset).
    - Tour 3 is a tour of randomly selected presets.
    - Tour 9 & Tour 10 are pre-recorded "Walk Patrols" (see Programming a Tour).
- The dome will run the tour until the **TOUR** key is pressed again.

15.8.2 Programming a Tour (Walk Patrol)

To start the tour programming:

- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letter "**t—**", flashing.
- Press one of the number keys **9** or **10** to select a tour number.
- Holding the **ALT** key on, press the **PROG** key.
- The display shows flashing "**rEC**".
- All joystick movements will be recorded until the programming is finished.
- While the display shows flashing "**rEC**", pressing one of the number keys **1**, **2**, **3**…**16** will move to a preset (See "Presets" above).

To finish programming a tour:

- Holding the **ALT** key on, press the **PROG** key to finish the tour programming.

15.9 Privacy

Zones on

- Press and hold **ALT** then press the **F12** key.

Zones off

- Press and hold **ALT** then press the **F13** key.

Cursor toggle

- Press and hold **ALT** then press the **F14** key.

Set/clear toggle

- Press and hold **ALT** then press the **F15** key.

15.10 Other Commands

180° turn

- Press and hold **ALT** then press the **F1** key.

Colour Mode

- Press and hold **ALT** then press the **F2** key.

Zero Lux

- Press and hold **ALT** then press the **F3** key.

Start Auto Setup routine

- Press and hold **ALT** then press the **F4** key.

Digital Zoom Control toggle

- Press and hold **ALT** then press the **F9** key.

On-Screen Display

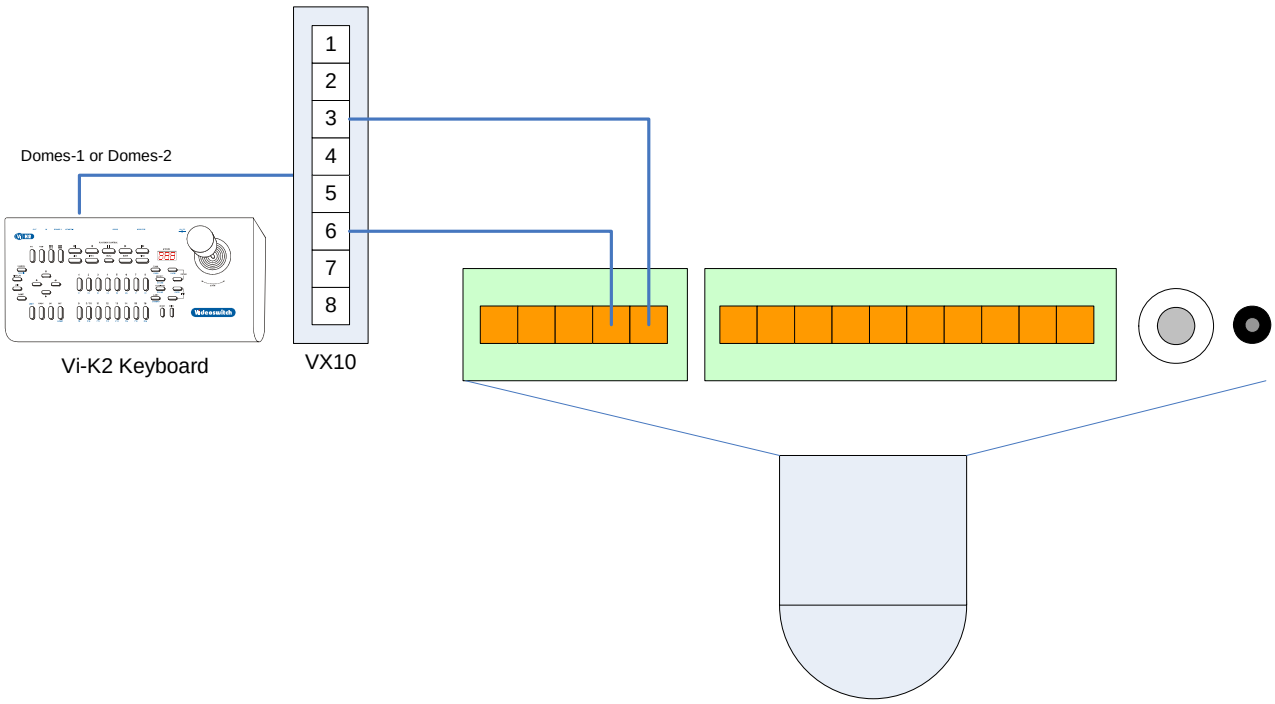
- Press and hold **ALT** then press the **F10** key.

Software Version On/Off

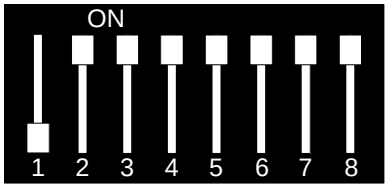
- Press and hold **ALT** then press the **F11** key.

16 Protocol 11 - Merit Lilin (MLP1)

16.1 Connections



16.2 Settings



Address 1 = Camera 1

16.3 Supported functions

- Pan / tilt / zoom / focus / iris
- Variable speed pan / tilt
- Wash
- Wipe
- Relay
- Lamp
- Auto-focus
- Auto-iris
- Auto-pan
- Presets (16)
- Tours (16, see below)
- 180° turn

16.4 Joystick Operation

16.4.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

16.4.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

16.5 Lens Control

16.5.1 Focus

- The two **FOCUS** keys can be used to adjust the focus.
- Press the **ALT** key and the upper **FOCUS** key to select auto-focus.

16.5.2 Iris

- The two **IRIS** keys can be used to adjust the iris.
- Press the **ALT** key and the upper **IRIS** key to select auto-iris.

16.6 Auxiliary Functions

16.6.1 Wash

Press the **WASH** key to operate the wash function.

16.6.2 Wipe

Press the **WIPE** key to turn on the wiper. Press again to turn off.

16.6.3 Auto-Pan

Press the **AUTO-PAN** key to turn on the auto-pan function. Press again to turn off.

16.6.4 Lamp

Press the **LAMP** key to turn on the lamp. Press again to turn off.

16.6.5 Relay

Holding the **ALT** key on, press the **RELAY** key to turn on the auxiliary relay. Press these keys again to turn relay off again.

16.7 Presets

16.7.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

16.7.2 Setting a Preset

- Select preset number to be set from Vi-K2/Vi-K3
- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**dLL**", flashing.
- Using camera keys select dwell time for preset.
- Press and hold the **ALT** key and then press the **STORE** key to store dwell time "**spd**" will flash on screen.
- Using camera keys select the speed for preset.
- Press and hold the **ALT** key and then press the **STORE** key to store the preset.

16.7.3 Clearing all Presets

- Press the **PRESET** key on the Vi-K2/Vi-K3.
- The display will show the letter "**P—**".
- Press and hold the **ALT** key and then press the **WIPE** key.

16.8 Tours

16.8.1 Running a Tour

16.8.2 Press the TOUR key.

- The display will show the letter "**t—**".
- Press one of the number keys **1**, **2**, **3**…**16** to run a tour (see table below).
    - Group 1 contains presets 1, 2, 3 & 4.
    - Group 2 contains presets 5, 6, 7 & 8.
    - Group 3 contains presets 9, 10, 11 & 12.
    - Group 4 contains presets 13, 14, 15 & 16.
    -

Key press	Tour Groups	Key press	Tour Groups
1	Group 1 only	9	Groups 2 + 3
2	Group 2 only	10	Groups 2 + 4
3	Group 3 only	11	Groups 3 + 4
4	Group 4 only	12	Groups 1 + 2 + 3
5	Groups 1 + 2 + 3 + 4	13	Groups 1 + 2 + 3 + 4
6	Groups 1 + 2	14	Groups 1 + 2 + 4
7	Groups 1 + 3	15	Groups 1 + 3 + 4
8	Groups 1 + 4	16	Groups 2 + 3 + 4

- The dome will run the tour until the **TOUR** key is pressed again.

16.9 Menus (PIH-7625 series only)

The Vi-K2/Vi-K3 has a special mode to make access to dome menus very easy:

- Press the **DOME** key on the Vi-K2/Vi-K3.
- The letters "**Do**" will appear on the display.

While the "**Do**" is being displayed, some of the keys on the Vi-K2/Vi-K3 have special functions as follows:

- Press the **MENU** key to enter the dome user menu.
- Use the **Up**, **Down**, **Left**, **Right** arrow keys to navigate within the dome menu.
- Press the **OK** key to enter a sub-menu or to accept a menu setting.

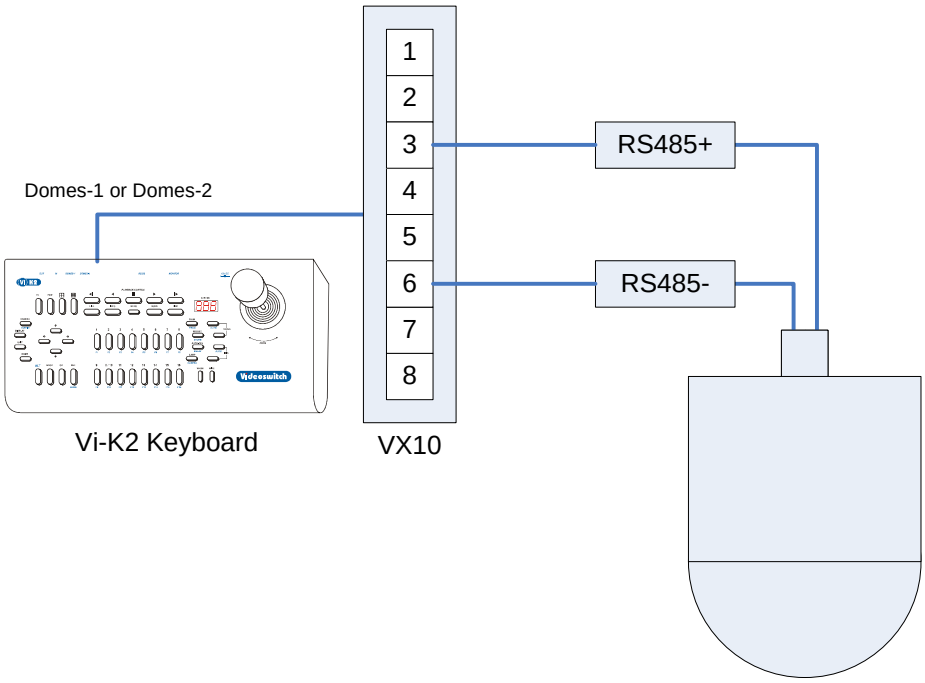
16.10 Other Commands

180° turn

- Press and hold **ALT** then press the **F1** key

17 Protocol 12 - Borsatec

17.1 Connections



17.2 Supported functions

- Pan / tilt / zoom / focus
- Variable speed pan / tilt / zoom / focus
- Relay
- Auto-focus
- Auto-pan
- Presets (16)
- Tours (1)
- Camera Power

17.3 Joystick Operation

17.3.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

17.3.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

17.4 Lens Control

17.4.1 Focus

- The two **FOCUS** keys can be used to adjust the focus.
- Press the **ALT** key and the upper **FOCUS** key to select auto-focus.

17.4.2 Iris

- The two **IRIS** keys can be used to adjust the iris.
- Press the **ALT** key and the upper **IRIS** key to select auto-iris.

17.5 Auxiliary Functions

17.5.1 Wash

Press the **WASH** key to operate the wash function.

17.5.2 Wipe

Press the **WIPE** key to turn on the wiper. Press again to turn off.

17.5.3 Auto-Pan

Press the **AUTO-PAN** key to turn on the auto-pan function. Press again to turn off.

17.5.4 Lamp

Press the **LAMP** key to turn on the lamp. Press again to turn off.

17.5.5 Relay

Holding the **ALT** key on, press the **RELAY** key to turn on the auxiliary relay. Press these keys again to turn relay off again.

17.6 Presets

17.6.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

17.6.2 Setting a Preset

- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **STORE** key to store the preset.
- In the case of Dennard domes, the dome menus may automatically appear so that a text string can be entered.

17.6.3 Clearing a Preset

- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **WIPE** key to clear the preset.

17.7 Tours

17.7.1 Running a Tour

- Press the **TOUR** key.
- The display will show the letter "**t—**".
- Press the number key **1** to run the tour (visit all presets).
- The dome will run the tour until the **TOUR** key is pressed again.

17.8 Menus

The Vi-K2/Vi-K3 has a special mode to make access to dome menus very easy:

- Press the **DOME** key on the Vi-K2/Vi-K3.
- The letters "**Do**" will appear on the display.

While the "**Do**" is being displayed, some of the keys on the Vi-K2/Vi-K3 have special functions as follows:

- Press the **MENU** key to enter the dome user menu.
- Use the **Up**, **Down**, **Left**, **Right** arrow keys to navigate within the dome menu.
- Press the **OK** key to enter a sub-menu or to accept a menu setting.

17.9 Programming a Tour

There is no specific key sequence for entering tour positions as all presets are used. To enter the dwell time, use the following key sequence.

- Press the **PROG** key.
- The display will show flashing "**dLL**".
- Enter the dwell time in seconds.
- Press the **PROG** key twice.

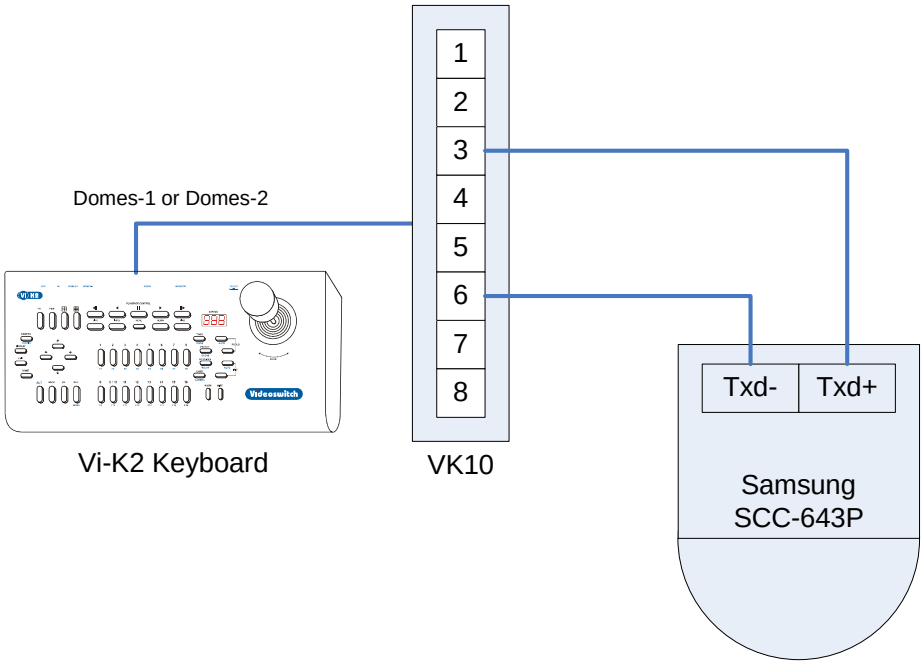
17.10 Other Commands

Auto-Pan

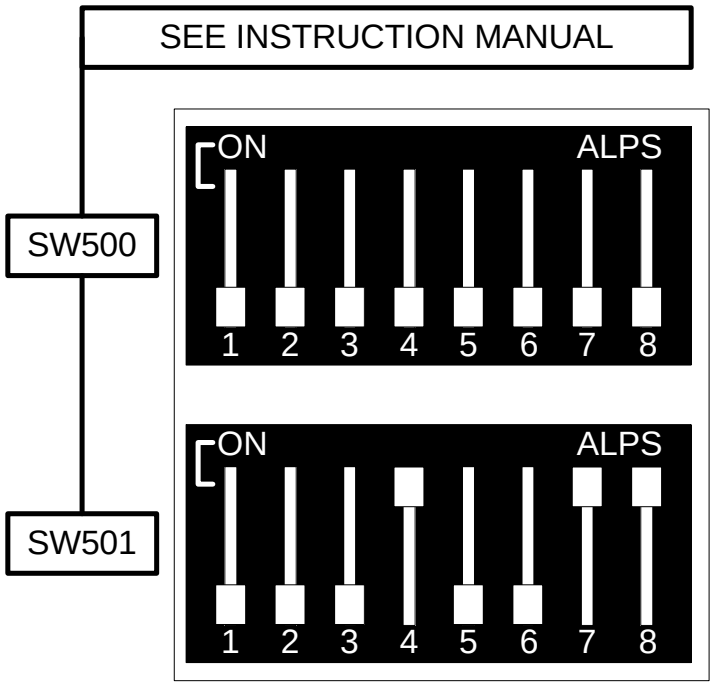
- The dome can auto-pan between two positions by pressing the **F9** key and the **F10** key. The pan speed is currently fixed. The auto-pan is cancelled by pressing the **AUTO-PAN** key.

18 Protocol 13 - Samsung

18.1 Connections



18.2 Settings



Address 0 = Camera 1

1 & 2: Termination (e.g. off)

3 & 4: Baud rate (9600)

5, 6, 7 & 8: Protocol (M)

18.3 Supported functions

- Pan / tilt / zoom
- Variable speed pan / tilt / zoom
- Presets (16)
- Tours (4)
- Menus
- Auto-pan

18.4 Joystick Operation

18.4.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

18.4.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

18.5 Auxiliary Functions

18.5.1 Auto-Pan

Press the **AUTO-PAN** key to turn on the auto-pan function. Press again to turn off.

18.6 Presets

18.6.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

18.6.2 Setting a Preset

- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **STORE** key to store the preset.

Presets can also be programmed via the in-built dome menu (Press **DOME** then **MENU** to access the menu).

18.7 Tours

18.7.1 Running a Tour

- Press the **TOUR** key.
- The display will show the letter "**t—**".
- Press one of the number keys **1**, **2** or **3** (or **4** for a tour of all presets) to run a tour that has previously been stored.
- The dome will run the tour until the **TOUR** key is pressed again.

18.7.2 Programming a Tour

Samsung domes use "patterns" that are programmed using the dome's built-in menu (see below).

18.8 Menus

The Vi-K2/Vi-K3 has a special mode to make access to dome menus very easy:

- Press the **DOME** key on the Vi-K2/Vi-K3.
- The letters "**Do**" will appear on the display.

While the "**Do**" is being displayed, some of the keys on the Vi-K2/Vi-K3 have special functions as follows:

- Press the **MENU** key to enter the dome user menu.
- Use the **Up**, **Down**, **Left**, **Right** arrow keys to navigate within the dome menu.
- Press the **OK** key to enter a sub-menu or to accept a menu setting.

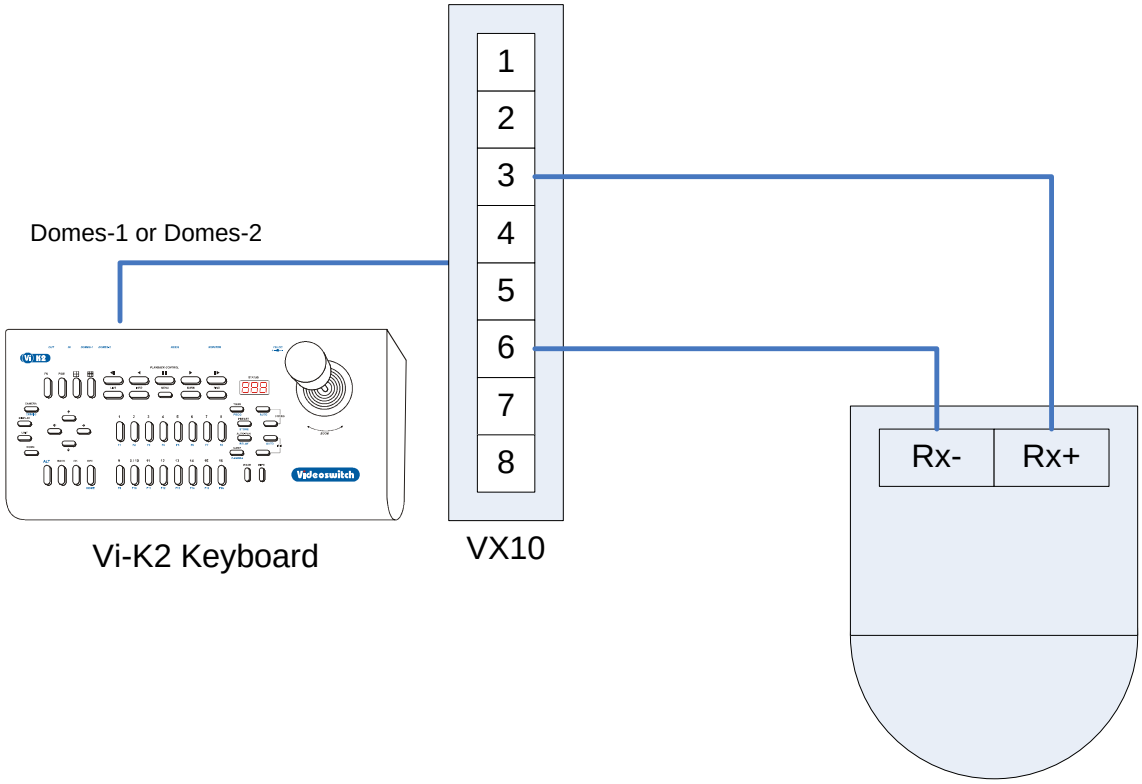
18.9 Other Commands

Auto-Pan

- Press **AUTO-PAN** key.

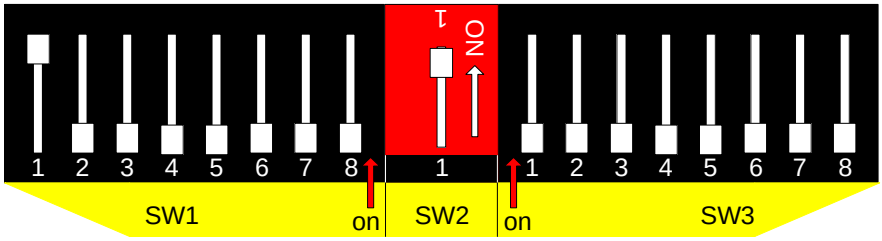
19 Protocol 14 - Pelco-D (2400 baud)

19.1 Connections



19.2 Settings

19.2.1 Switch Settings



SW1 = Camera number

E.g.

10000000 = Camera 1

11010000 = Camera 11

Notes

- Dome Camera numbers are equivalent to Vi-K2/Vi-K3 Keyboard camera numbers.
- This protocol uses a data rate of **2400 baud**

Please note for JUNO domes dipswitches 2, 3 and 4 must be set on switch 2.

For Vista Power dome users please set keyboard protocol to 19 all features below will still be supported.

19.3 Supported functions

- Pan / tilt / zoom / focus / iris
- Variable speed pan / tilt / zoom / focus / iris
- Auto-focus
- Auto-iris
- Presets (16)
- Tours (4)
- Menus
- 180° turn
- Set/clear auxiliary (01 – 08)
- Alarm acknowledge (01 – 08)

19.4 Joystick Operation

19.4.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

19.4.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

19.5 Lens Control

19.5.1 Focus

- The two **FOCUS** keys can be used to adjust the focus.
- Press the **ALT** key and the upper **FOCUS** key to toggle auto-focus on & off.

19.5.2 Iris

- The two **IRIS** keys can be used to adjust the iris.
- Press the **ALT** key and the upper **IRIS** key to toggle auto-iris on & off.

19.6 Presets

19.6.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

19.6.2 Setting a Preset

- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **STORE** key to store the preset.

19.6.3 Clearing a Preset

- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **WIPE** key to clear the preset.

19.7 Tours

19.7.1 Running a Tour

- Press the **TOUR** key.
- The display will show the letter "**t—**".
- Press one of the number keys **1**, **2**, **3** or **4** to select a tour number.
- The dome will run the tour until the **TOUR** key is pressed again.

19.7.2 Programming a Tour (Pattern)

To start the tour programming:

- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letter "**t—**", flashing.
- Press one of the number keys **1**, **2**, **3** or **4** to select a tour number.
- Holding the **ALT** key on, press the **PROG** key.

- The display shows flashing "**rEC**".
- All joystick movements will be recorded until the programming is finished.
- While the display shows flashing "**rEC**", pressing one of the number keys **1**, **2**, **3**…**16** will move to a preset (See "Presets" above).

To finish programming a tour:

- Holding the **ALT** key on, press the **PROG** key to finish the tour programming.

19.8 Menus

The Vi-K2/Vi-K3 has a special mode to make access to dome menus very easy:

- Press the **DOME** key on the Vi-K2/Vi-K3.
- The letters "**Do**" will appear on the display.

While the "**Do**" is being displayed, some of the keys on the Vi-K2/Vi-K3 have special functions as follows:

- Press the **MENU** key to enter the dome user menu.
- Use the **Up**, **Down**, **Left**, **Right** arrow keys to navigate within the dome menu.
- Press the **OK** key to enter a sub-menu or to accept a menu setting.

Please Note for JUNO domes to select menu options please use focus in on joystick rather then ok key.

19.9 Other Commands

180° turn

- Press and hold **ALT** then the **F1** key

Alarm acknowledge (Alarms 01 – 08)

- Press and hold **ALT** while pressing **F9** – **F16**

Auxiliary (01 – 08)

- Aux 1: Press and hold **ALT** then press the **RELAY** key to toggle.
- Aux 2: Press the **LAMP** key to toggle.
- Aux 3: Press the **WASH** key and hold to set, release to clear.
- Aux 4: Press the **WIPE** key to toggle.
- Aux 5-8: Press and hold **ALT** then press the one of the **F5** - **F8** keys.

19.10 Forward vision Pelco-D

When using A Forward vision PTZ dome camera the default AUX commands are mapped differently to the default Videoswitch AUX commands. To rectify this you must download and use Forward Visions PelcoDTungpo7 camset program to map the AUX commands so that our Vi-K2/Vi-K3 keyboard will function correctly with the Dome Camera.

20 Protocol 15 – Videoswitch (VXP4)

20.1 Supported functions

- Pan / tilt / zoom / focus / iris
- Variable speed pan / tilt / zoom
- Wash
- Wipe
- Relay
- Lamp
- Auto-focus
- Auto-iris
- Auto-pan
- Presets (16)
- Tours (16, see below)
- IR Lamp

20.2 Joystick Operation

20.2.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

20.2.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

20.3 Lens Control

20.3.1 Focus

- The two **FOCUS** keys can be used to adjust the focus.
- Press the **ALT** key and the upper **FOCUS** key to select auto-focus.

20.3.2 Iris

- The two **IRIS** keys can be used to adjust the iris.
- Press the **ALT** key and the upper **IRIS** key to select auto-iris.

20.4 Auxiliary Functions

20.4.1 Lamp

Press the **LAMP** key to turn on the lamp. Press again to turn off.

20.5 Presets

20.5.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

20.5.2 Setting a Preset

- Select preset number to be set from Vi-K2/Vi-K3
- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **PRESET** key.
- Select the required preset number
- Press and hold the **ALT** key and then press the **PRESET** key to store the preset.

20.6 Tours

20.6.1 Running a Tour

20.6.2 Press the TOUR key.

- The display will show the letter "**t—**".
- Press one of the number keys **1**, **2**, **3**…**16** to run a tour (see table below).
- The dome will run the tour until pan/tilt/preset

20.7 Menus

The Vi-K2/Vi-K3 has a special mode to make access to dome menus very easy:

- Press the **DOME** key on the Vi-K2/Vi-K3.
- The letters "**Do**" will appear on the display.

While the "**Do**" is being displayed, some of the keys on the Vi-K2/Vi-K3 have special functions as follows:

- Press the **MENU** key to enter the dome user menu.
- Use the **Up**, **Down**, **Left**, **Right** arrow keys to navigate within the dome menu.
- Press the **OK** key to enter a sub-menu or to accept a menu setting.

20.8 Other Commands

180° turn

- Press and hold **ALT** then press the **F1** key

21 Protocol 16 - SpeedDome

21.1 Connections

21.2 Settings

21.3 Supported functions

- Pan / tilt / zoom
- Variable speed pan / tilt / zoom
- Presets (16)
- Tours (4)
- Menus

21.4 Joystick Operation

21.4.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

21.4.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

21.5 Presets

21.5.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

21.5.2 Setting a Preset

- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **STORE** key to store the preset.

Presets can also be programmed via the in-built dome menu (Press **DOME** then **MENU** to access the menu).

21.6 Tours

21.6.1 Running a Tour

- Press the **TOUR** key.
- The display will show the letter "**t—**".
- Press one of the number keys **1**, **2** or **3** (or **4** for a tour of all presets) to run a tour that has previously been stored.
- The dome will run the tour until the **TOUR** key is pressed again.

21.6.2 Programming a Tour

To start the tour programming:

- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letter "**t—**", flashing.
- Press one of the number keys **1**, **2** or **3** to select a tour number.
- Holding the **ALT** key on, press the **PROG** key.

Repeat these steps for each position in the tour:

- The display will show the letters "**PoS**", flashing (asking for a preset position).
- Enter the next preset position number **1**, **2**, **3**…**16**.
- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letters "**dLL**", flashing (asking for a dwell time).
- Optionally enter a new dwell time (**0**, **1**, **2**…**9** where each increment represents 2 seconds).
- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letters "**Spd**", flashing (asking for a speed)
- Optionally enter a new speed value to determine how long the dome takes to get from one position to the next (**0**, **1**, **2**…**9** where each increment represents 2 seconds).
- Holding the **ALT** key on, press the **PROG** key, and repeat for all positions.

To finish programming a tour:

- The tour can be finished when the letters "**PoS**" are displayed, as follows:
- Holding the **ALT** key on, press the **PROG** key (i.e. without entering another position) to finish the tour programming.
- The word "**Fin**" will be displayed, indicating that the tour programming has finished.
- Finally, Holding the **ALT** key on, press the **PROG** key to return the display to its normal mode.

Tours can also be programmed via the in-built dome menu (Press **DOME** then **MENU** to access the menu).

21.7 Menus

The Vi-K2/Vi-K3 has a special mode to make access to dome menus very easy:

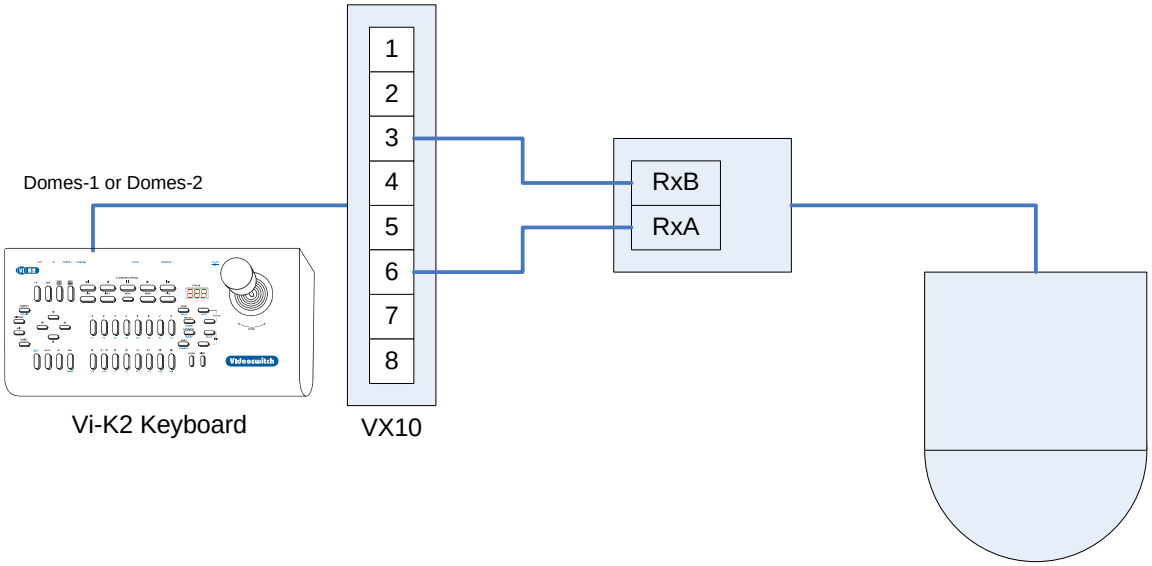
- Press the **DOME** key on the Vi-K2/Vi-K3.
- The letters "**Do**" will appear on the display.

While the "**Do**" is being displayed, some of the keys on the Vi-K2/Vi-K3 have special functions as follows:

- Press the **MENU** key to enter the dome user menu.
- Use the **Up**, **Down**, **Left**, **Right** arrow keys to navigate within the dome menu.
- Press the **OK** key to enter a sub-menu or to accept a menu setting.

22 Protocol 17 - Forward Vision (FV)

22.1 Connections



22.2 Settings

This protocol option requires a Forward Vision dome with Forward Vision protocol installed. The address of the dome must also be set – refer to Forward Vision manual.

22.3 Supported functions

- Pan / tilt / zoom / focus / iris
- Variable speed pan / tilt / zoom
- Wash
- Wipe
- Auto-pan
- Presets (16)
- Tours (1)
- Auto-focus
- Auto-iris
- Privacy (Where the dome supports this)

22.4 Joystick Operation

22.4.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

22.4.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

22.5 Lens Control

22.5.1 Focus

- The two **FOCUS** keys can be used to adjust the focus.
- Press the **ALT** key and the upper **FOCUS** key to select auto-focus.

22.5.2 Iris

- The two **IRIS** keys can be used to adjust the iris.
- Press the **ALT** key and the upper **IRIS** key to select auto-iris.

22.6 Auxiliary Functions

22.6.1 Wash

Press the **WASH** key to operate the wash function.

22.6.2 Wipe

Press the **WIPE** key to turn on the wiper. Press again to turn off.

22.6.3 Auto-Pan

Press the **AUTO-PAN** key to turn on the auto-pan function. Press again to turn off.

22.7 Presets

22.7.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

22.7.2 Setting a Preset

- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **STORE** key to store the preset.

22.8 Tours

22.8.1 Running the Tour

- Press the **TOUR** key.
- The display will show the letter "**t—**".
- Press the number key **1** to run the tour that has previously been stored.
- The dome will run the tour until the **TOUR** key is pressed again.

22.8.2 Programming the Tour

To start the tour programming:

- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letter "**t—**", flashing.
- Press one of the number keys **1**, **2**, **3 or 4** to select a tour block. Each tour has 4 blocks and each block has 8 preset positions that can be programmed. When running, the tour will process each block sequentially.
- Holding the **ALT** key on, press the **PROG** key.

Repeat these steps for each position in the tour:

- The display will show the letters "**PoS**", flashing (asking for a preset position)
- Enter the next preset position number **1**, **2**, **3**…**16**.
- Holding the **ALT** key on, press the **PROG** key, and repeat for all positions.

To finish programming the tour:

- The tour can be finished when the letters "**PoS**" are displayed, as follows:
- Holding the **ALT** key on, press the **PROG** key (i.e. without entering another position) to finish the tour programming.
- The word "**Fin**" will be displayed, indicating that the tour programming has finished.
- Finally, Holding the **ALT** key on, press the **PROG** key to return the display to its normal mode.

22.9 Privacy commands

Set whole

- Press and hold **ALT** then press the **F9** key.

Clear whole

- Press and hold **ALT** then press the **F10** key.

Uncover all

- Press and hold **ALT** then press the **F11** key.

Replace all

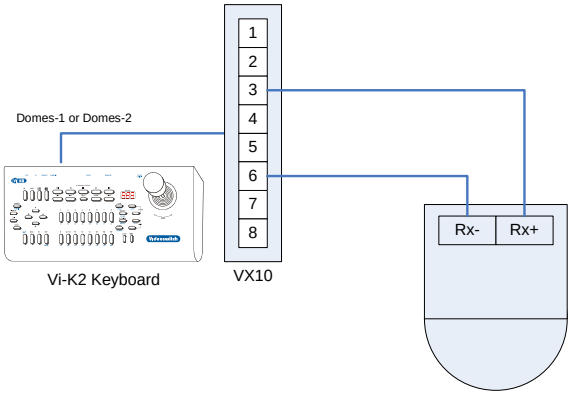
- Press and hold **ALT** then press the **F12** key.

23 Protocol 18 – BBV RS485

This protocol supports BBV equipment using the BBV RS485 protocol, at 9600 baud

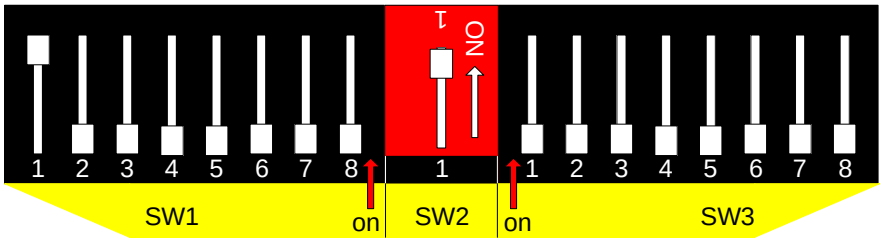
24 Protocol 19 – Vista (PelcoD)

24.1 Connections



24.2 Settings

24.2.1 Switch Settings



SW1 = Camera number

E.g.

10000000 = Camera 1

11010000 = Camera 11

Notes

- Dome Camera numbers are equivalent to Vi-K2/Vi-K3 Keyboard camera numbers.
- This protocol uses a data rate of **2400 baud**

24.3 Supported functions

- Pan / tilt / zoom / focus / iris
- Variable speed pan / tilt / zoom / focus / iris
- Auto-focus
- Auto-iris
- Presets (16)
- Tours (4)
- Menus
- 180° turn
- Set/clear auxiliary (01 – 08)
- Alarm acknowledge (01 – 08)

24.4 Joystick Operation

24.4.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

24.4.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

24.5 Lens Control

24.5.1 Focus

- The two **FOCUS** keys can be used to adjust the focus.
- Press the **ALT** key and the upper **FOCUS** key to toggle auto-focus on & off.

24.5.2 Iris

- The two **IRIS** keys can be used to adjust the iris.
- Press the **ALT** key and the upper **IRIS** key to toggle auto-iris on & off.

24.6 Presets

24.6.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

24.6.2 Setting a Preset

- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **STORE** key to store the preset.

24.6.3 Clearing a Preset

- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**P—**", flashing.
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset.
- Press and hold the **ALT** key and then press the **WIPE** key to clear the preset.

24.7 Tours

24.7.1 Running a Tour

- Press the **TOUR** key.
- The display will show the letter "**t—**".
- Press one of the number keys **1**, **2**, **3** or **4** to select a tour number.
- The dome will run the tour until the **TOUR** key is pressed again.

24.7.2 Programming a Tour (Pattern)

To start the tour programming:

- Holding the **ALT** key on, press the **PROG** key.
- The display will show the letter "**t—**", flashing.
- Press one of the number keys **1**, **2**, **3** or **4** to select a tour number.
- Holding the **ALT** key on, press the **PROG** key.
- The display shows flashing "**rEC**".
- All joystick movements will be recorded until the programming is finished.

- While the display shows flashing "**rEC**", pressing one of the number keys **1**, **2**, **3**…**16** will move to a preset (See "Presets" above).

To finish programming a tour:

- Holding the **ALT** key on, press the **PROG** key to finish the tour programming.

24.8 Menus

The Vi-K2/Vi-K3 has a special mode to make access to dome menus very easy:

- Press the **DOME** key on the Vi-K2/Vi-K3.
- The letters "**Do**" will appear on the display.

While the "**Do**" is being displayed, some of the keys on the Vi-K2/Vi-K3 have special functions as follows:

- Press the **MENU** key to enter the dome user menu.
- Use the **Up**, **Down**, **Left**, **Right** arrow keys to navigate within the dome menu.
- Press the **OK** key to enter a sub-menu or to accept a menu setting.

Please Note for JUNO domes to select menu options please use focus in on joystick rather then ok key.

24.9 Other Commands

180° turn

- Press and hold **ALT** then the **F1** key

Alarm acknowledge (Alarms 01 – 08)

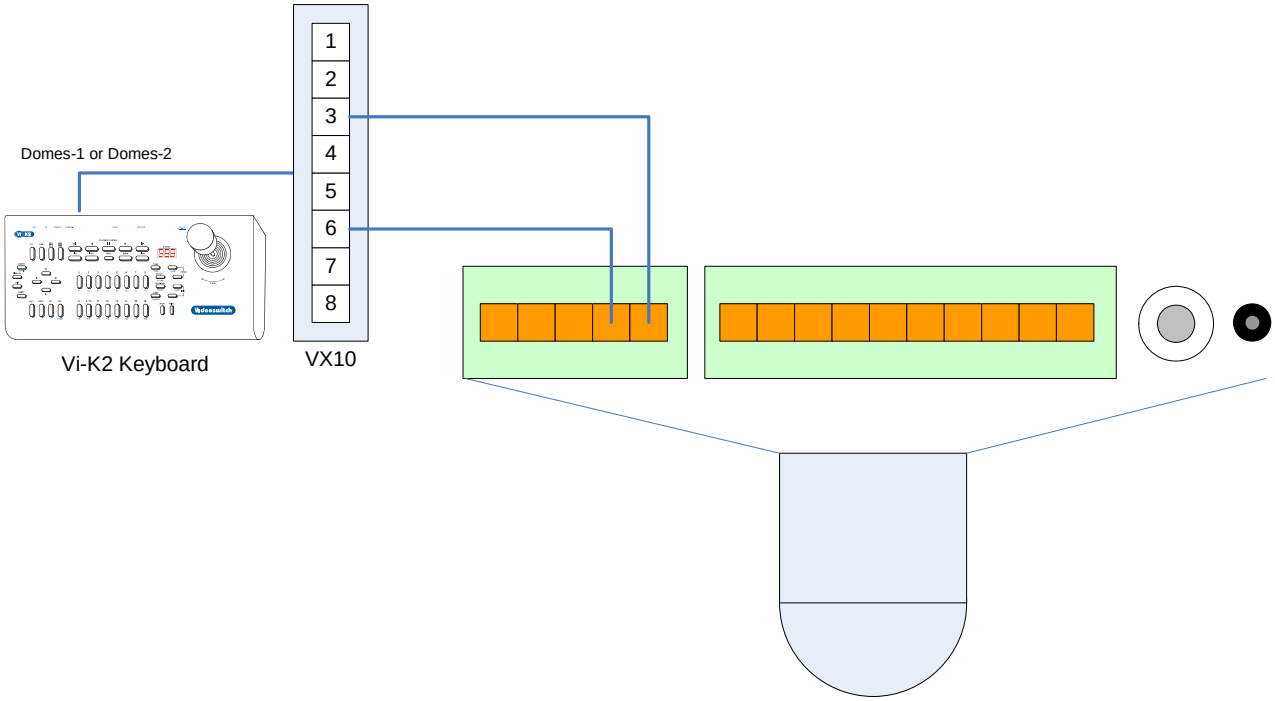
- Press and hold **ALT** while pressing **F9** – **F16**

Auxiliary (01 – 08)

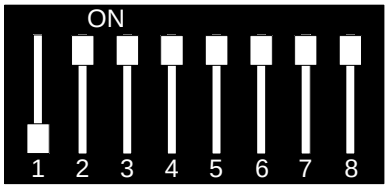
- Aux 1: Press and hold **ALT** then press the **RELAY** key to toggle.
- Aux 2: Press the **LAMP** key to toggle.
- Aux 3: Press the **WASH** key and hold to set, release to clear.
- Aux 4: Press the **WIPE** key to toggle.
- Aux 5-8: Press and hold **ALT** then press the one of the **F5** - **F8** keys.

25 Protocol 20 – LiLin (MLP2)

25.1 Connections



25.2 Settings



Address 0 = Camera1

Address 1 = Camera 2

etc…

25.3 Supported functions

- Pan / tilt / zoom / focus / iris
- Variable speed pan / tilt
- Wash
- Wipe
- Relay
- Lamp
- Auto-focus
- Auto-iris
- Auto-pan
- Presets (16)
- Tours (see below)
- 180° turn

25.4 Joystick Operation

25.4.1 Pan & Tilt

Move the joystick left, right, up and down to move the dome in the corresponding direction. If the dome has variable speed, then the further the joystick is moved from its central position, the faster the camera will pan or tilt.

25.4.2 Zoom

Zoom is achieved by twisting the handle of the joystick clockwise (zoom in), or anti-clockwise (zoom out). If the camera has variable zoom speed, the more the handle is twisted, the faster the zoom movement will be.

25.5 Lens Control

25.5.1 Focus

- The two **FOCUS** keys can be used to adjust the focus.
- Press the **ALT** key and the upper **FOCUS** key to select auto-focus.

25.5.2 Iris

- The two **IRIS** keys can be used to adjust the iris.
- Press the **ALT** key and the upper **IRIS** key to select auto-iris.

25.6 Auxiliary Functions

25.6.1 Wash

Press the **WASH** key to operate the wash function.

25.6.2 Wipe

Press the **WIPE** key to turn on the wiper. Press again to turn off.

25.6.3 Auto-Pan

Press the **AUTO-PAN** key to turn on the auto-pan function. Press again to turn off.

25.6.4 Lamp

Press the **LAMP** key to turn on the lamp. Press again to turn off.

25.6.5 Relay

Holding the **ALT** key on, press the **RELAY** key to turn on the auxiliary relay. Press these keys again to turn relay off again.

25.7 Presets

25.7.1 Recalling a Preset

- Press the **PRESET** key.
- The display will show the letter "**P—**".
- Press one of the number keys **1**, **2**, **3**…**16** to select a preset that has previously been stored.
- The dome will move to that preset position.
- If the joystick is moved, the preset display will be cancelled.

25.7.2 Setting a Preset

- Select preset number to be set from Vi-K2/Vi-K3
- Move the dome to the position at which you wish to set a preset.
- Press and hold the **ALT** key and then press the **STORE** key.
- The display will show the letter "**dLL**", flashing.
- Using camera keys select dwell time for preset.
- Press and hold the **ALT** key and then press the **STORE** key to store dwell time "**spd**" will flash on screen.
- Using camera keys select the speed for preset.
- Press and hold the **ALT** key and then press the **STORE** key to store the preset.

25.7.3 Clearing all Presets

- Press the **PRESET** key on the Vi-K2/Vi-K3.
- The display will show the letter "**P—**".
- Press and hold the **ALT** key and then press the **WIPE** key.

25.8 Tours

25.8.1 Running a Tour

25.8.2 Press the TOUR key.

- The display will show the letter "**t—**".
- Press one of the number keys **1**, **2**, **3**…**16** to run
    - 1,2 – Tours 1 and 2
    - 3 - patrol
    - 4 – auto track
    - 5 – audo
    - 6 - Seq
- The dome will run the tour until pan/tilt or preset

25.9 Menus

The Vi-K2/Vi-K3 has a special mode to make access to dome menus very easy:

- Press the **DOME** key on the Vi-K2/Vi-K3.
- The letters "**Do**" will appear on the display.

While the "**Do**" is being displayed, some of the keys on the Vi-K2/Vi-K3 have special functions as follows:

- Press the **MENU** key to enter the dome user menu.
- Use the **Up**, **Down**, **Left**, **Right** arrow keys to navigate within the dome menu.
- Press the **OK** key to enter a sub-menu or to accept a menu setting.

25.10 Other Commands

180° turn

- Press and hold **ALT** then press the **F1** key

26 Protocol 21 - Pelco-D (9600 baud)

This is the 9600 baud version of Pelco-D protocol. All features as per Pelco D (2400 baud).

27 Protocol 22 - Pelco-P (4800 baud)

This is the standard 4800 baud Pelco-P protocol. All features as per Pelco D (2400 baud).

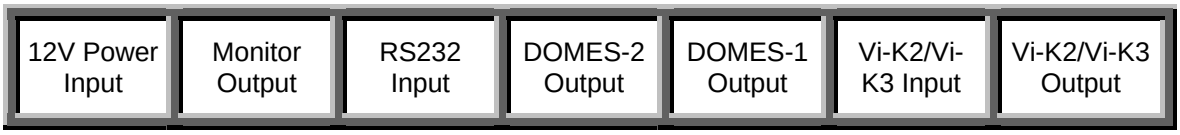
28 Protocol 23 - Pelco-P (9600 baud)

This is the 9600 baud version of Pelco-P protocol. All features as per Pelco D (2400 baud).

29 Pin-Out Reference

29.1 Connector Arrangement

Viewing the Vi-K2/Vi-K3 from the rear, the connectors are arranged in this order:



29.2 12V DC Power Input (2.1mm Inlet)

With a CAT5 connection to a Videoswitch Digital Recorder, this power input is not required (for cables runs up to about 200 metres).

Pin	Description
Inner Pin	+12V DC (Range: 9V to 15V), 200mA maximum
Outer Sheath	GND

29.3 Monitor Output (BNC)

With a CAT5 connection to a Videoswitch Digital Recorder, with a cable length up to about 200metres, a monitor may be connected to this BNC connector. For longer runs, a separate coax cable may be required for the monitor.

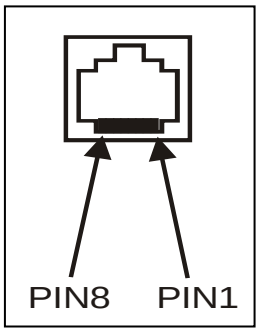
Pin	Description
Inner Pin	Composite Video (PAL)
Chassis	GND

29.4 RS232 (9-way female D-type, DCE)

The RS232 input is provided for firmware upgrade from a PC. Contact Videoswitch for details.

Pin	Signal Name	Usage
2	RXD	RS232 Output
3	TXD	RS232 Input
5	GND	Ground

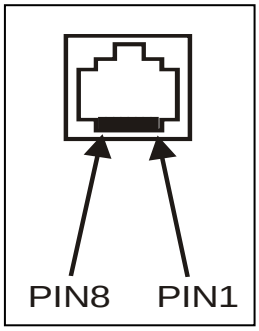
29.5 DOMES-2 Output (RJ45)



Pin	Description
1	20mA Output
2	
3	RS485 Data A (+) Output
5	Ground (Screen)
6	RS485 Data B (-) Output

- For RS485 use Pins 3 and 6
- For RS232 use Pins 2 and 5
- For 20mA use Pins 1 and 5

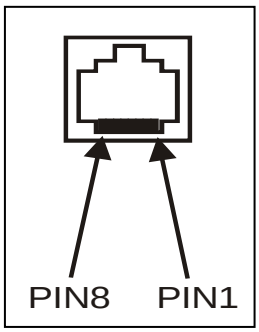
29.6 DOMES-1 Output (RJ45)



Pin	Description
1	20mA Output (use with pin 5)
2	RS232 Output
3	RS485 Data A (+) Output
5	Ground (Screen)
6	RS485 Data B (-) Output

- For RS485 use Pins 3 and 6
- For RS232 use Pins 2 and 5
- For 20mA use Pins 1 and 5

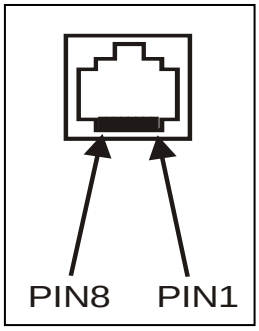
29.7 Slave Vi-K2/Vi-K3 Input (RJ45)



Pin	Description
1	RS485 Data A (+) Input
2	RS485 Data B (-) Input
5	Ground (Screen)

29.8 Vi-series Input/Output (RJ45)

Pin	Description
1	RS485 Data A (+) Output
2	RS485 Data B (-) Output
4	+12V Power Input from Vi-series
5	Ground (Screen)
7	Video Input +
8	Video Input -



30 Specifications

30.1 Power Requirements

Connector	2.1mm coaxial power connector (Tip positive, shaft negative)
Voltage	12V (Range: 7.5V to 15V DC)
Current	300mA maximum

30.2 Dimensions & Weight

Dimensions (width/Depth/height)	300mm x 150mm x 105mm (including joystick)
Weight	2kg

30.3 Operating Distances

Control, Video and Self-Power	200 metres
Control Only	1000 metres